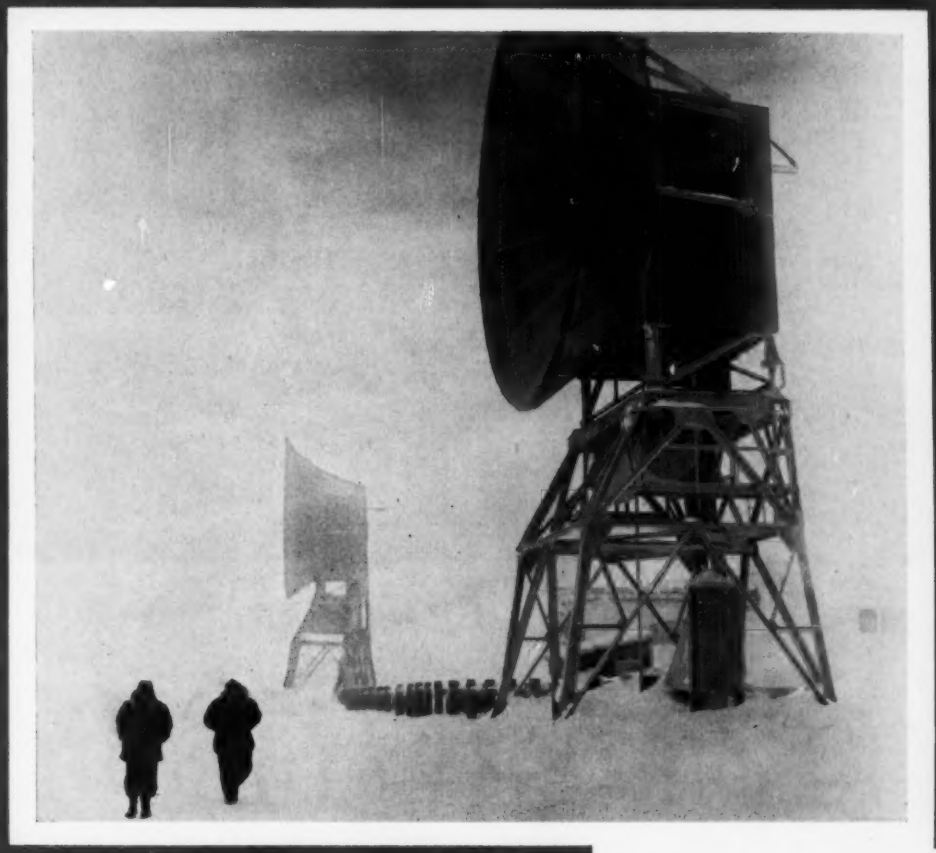
FEBRUARY 7, 1959
VOL. 156 — NO. 6

Telephony

THE JOURNAL OF THE
TELEPHONE INDUSTRY
SINCE 1901



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Guaranteed Circulation This Issue
13,006 of Which 12,405 is Paid

Winter Along "White Alice"

Winter fog cuts visibility at a remote station of White Alice air defense network in northwestern Alaska, built, maintained and operated by two telephone organizations, along with DEW Line. See page 23 for article.

MANAGEMENT • PLANT • TRAFFIC • COMMERCIAL • LEGAL • ACCOUNTING

XY® Toll Ticketing:* 28% revenue increase...

James M. Wells, President of Northwest Telephone Company, inspects his new XY Toll Ticketing equipment.

in Redmond, Oregon.

This report from Northwest Telephone Company of Redmond tells the story of XY Toll Ticketing in operation:

"Most important to the operating company . . . As a result of our installations, revenues have increased 28% intra-company and 12% inter-company, while maintenance has decreased."

The first company in Oregon to offer its subscribers state- and nation-wide toll dialing, Northwest is justly proud of its position—attained with the help and cooperation of employees and suppliers.

You, too, can enjoy the extra revenue of D.D.D. —and do it more *profitably* with XY Toll Ticketing. Contact your Stromberg-Carlson representative.

* Win a hat! Enter our Name-the-System contest. For details see our ad in *Telephony*, January 3. Or write to us.

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BETTER TO TALK OVER! Speech quality is improved too: the shorter handset design extends the frequency bandwidth, sets a new high in transmitting and receiving performance. The transmitter is closer to user's mouth, gives a better signal-to-noise ratio.

the Kellogg K-500

BETTER INSIDE! Designed for top performance, using highest quality components throughout. Receiver, transmitter, ringer are new in principle, design and performance; the network is a compact, sealed housing. The single-lobed dial cam provides more uniform pulses; the new number plate makes for faster, surer dialing.

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FLASHES AND PLUGS

LAPPING MATTER. The new maid delivered a drink of water to her mistress carrying the glass in her hand.

Indignantly the mistress exclaimed: "You shouldn't bring me a drink that way. After this, put it on a tray."

The next morning the maid had a worried look on her face as she presented a tray to her mistress.

"Excuse me, ma'am," she said, "but do you want a spoon with this or will you just lap it up?"

•

EXPLICIT INSTRUCTIONS. A visitor to Baton Rouge, La., unfamiliar with pedestrian traffic signals, telephoned police headquarters recently asking directions to the state capitol.

Desk Sergeant M. K. Gunby asked the caller his location.

The man stepped outside his telephone booth, then returned.

"I'm at the corner of 'Walk' and 'Don't Walk,' " he said.

•

IT'S HOME AGAIN. The wedding ceremony was over, and the bride's father, a Scotsman, addressed the guests. "Thank you for your presence here, for your generous gifts, and your warm good wishes to our young people. Although she is our only daughter, we do not feel we are losing her.

"Rather, we are gaining a son, a good one, and we regain the use of our telephone, our car, our lounge and our bathroom—all of which she made her own for so long. Bless them both."—*People's Journal*, Scotland.

•

HOUSEBREAKERS. On the blotter of a suburban police department near Boston are these two entries by Patrolman Joe Falvey:

"7:10 p.m.—A woman on north Pleasant St. called and said she had a skunk in her cellar. I told her to get some meat scraps and make a trail from the open cellar door to the back of her yard. Told her to watch from the window and when skunk followed trail of meat scraps, to close the cellar door gently.

"8:40 p.m.—The woman called again. She reported she did like I told her with the meat scraps and now she has two skunks in her cellar."

•

SOUND BARRIER. An American got on a train in Munich, Germany recently. There was no one else in the compartment except an older woman. The American sat down at the window, looked out, and chewed his gum.

After a while the old woman leaned over and said in a friendly tone, "It's nice of you to try to converse with me. But I'm stone deaf."

CHANGE OF ADDRESS

Please notify your local postmaster and the Circulation Dept. of TELEPHONY of change of address. Change cannot be made without the old as well as the new address. Allow three weeks for change of address to become effective.

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Since 1901

February 7, 1959

CONTENTS

EDITORIAL—JUNIOR ACHIEVEMENT—HOPE FOR THE FUTURE 17

IN THE NATION'S CAPITAL 18
By Francis X. Welch

1959 CONVENTION CALENDAR 20

A BRIGHT FUTURE WITH PLANNING AND MARKETING 21
By F. E. Norris

TELEPHONE ORGANIZATIONS BUILD, MAINTAIN DEW LINE, WHITE ALICE 23
By Ray Blain

MICROWAVE TECHNIQUES—PART 3 25
By Harold B. McKay

THE PLANT MAN'S NOTEBOOK 30
By Ray Blain

COURTS AND COMMISSIONS 32

H. D. FARGO JR., *President and Director of Advertising* • A. J. STULTS, *Vice President and Advertising Manager* • R. C. RENO, *Vice President and Editor* • DAN S. FARGO, *Vice President and Managing Editor* • DIANNE P. DRUCKER, *Associate Editor* • HELEN HARDIN, *Associate Editor* • FRANCIS X. WELCH, *Washington Editor* • RAY BLAIN, *Technical Editorial Director* • HAROLD B. McKAY, *Electronics Editor* • MAYME WORKMAN, *Traffic Editor* • VIVIAN RYDEN, *Circulation Manager.*

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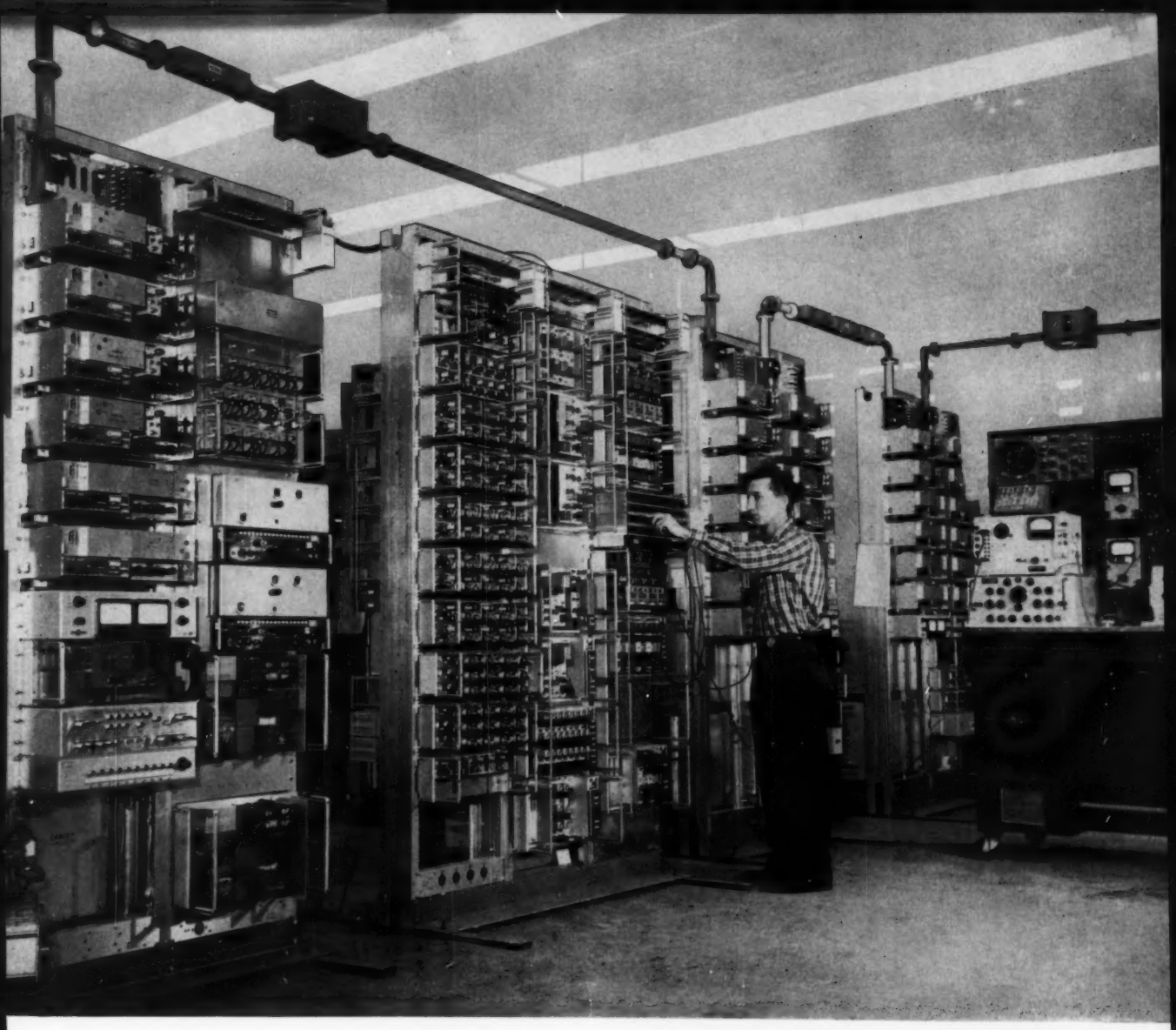

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IN 3-6-16 PAIR SIZES & MINIGAP ARRESTERS

No need to forego protection when benefiting from the economies and installation advantages of the Cook Cable Coat. As illustrated here, 3, 6, 9, 12 or 16 cable pairs can be terminated and protected by combining the new Cook 3C PROTECTOR BLOCKS in terminating the cable pairs. Furthermore, by inserting Minigap arresters, cable pairs are protected selectively, thus affording the maximum flexibility and economy in providing protected termination for subscriber take-offs or test points. The new Cook 3C PROTECTOR BLOCKS are factory wired. A pair of leads are provided for each terminal. A heavy aluminum angle plate acts as ground strip and mounting plate. The bakelite face plate and aluminum angle plate cover the EXG 41 resin potting compound thus assuring moisture free termination.

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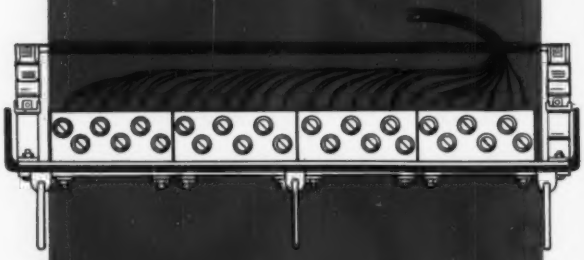

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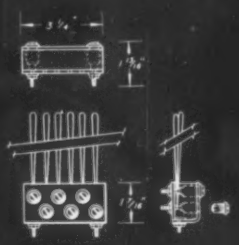
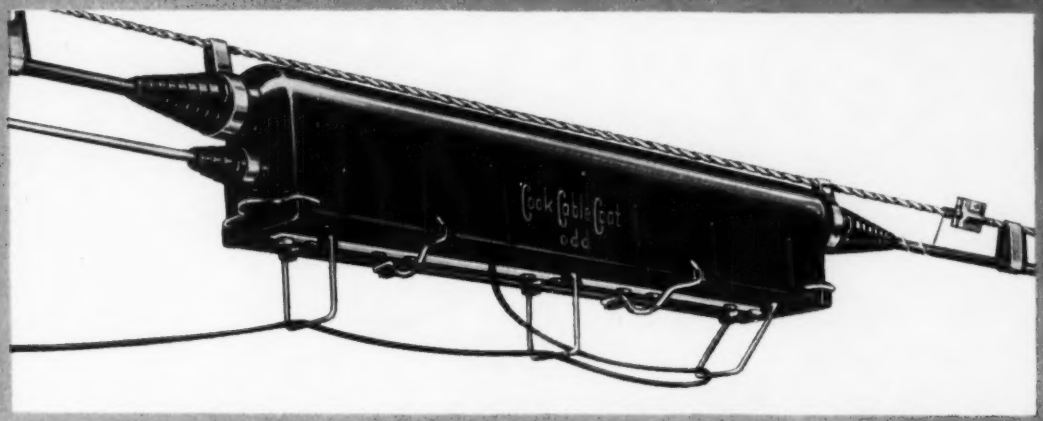


Three pair 3C protected block	81-203
*Minigap Arrester (.01" airgap)	41-610

* Listed as Standard by the R E A



TWO 6 PAIR 3C PROTECTED BLOCKS

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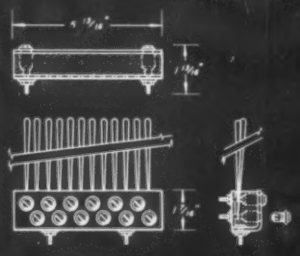
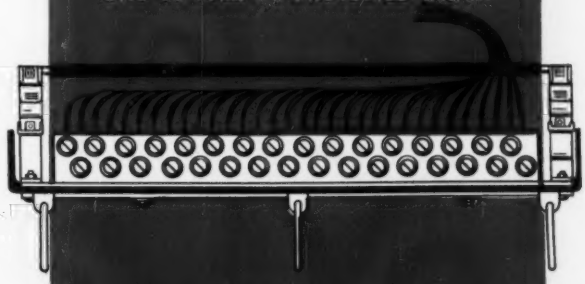
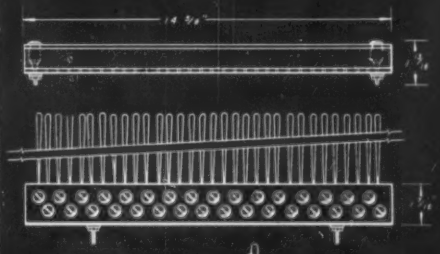


Six pair 3C protected block	81-206
Minigap Arrester (.005 airgap)	41-285

ONE 16 PAIR 3C PROTECTED BLOCK





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Sixteen pair 3C protected block	81-216
Minigap Arrester (.005 airgap)	41-285

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Since 1897

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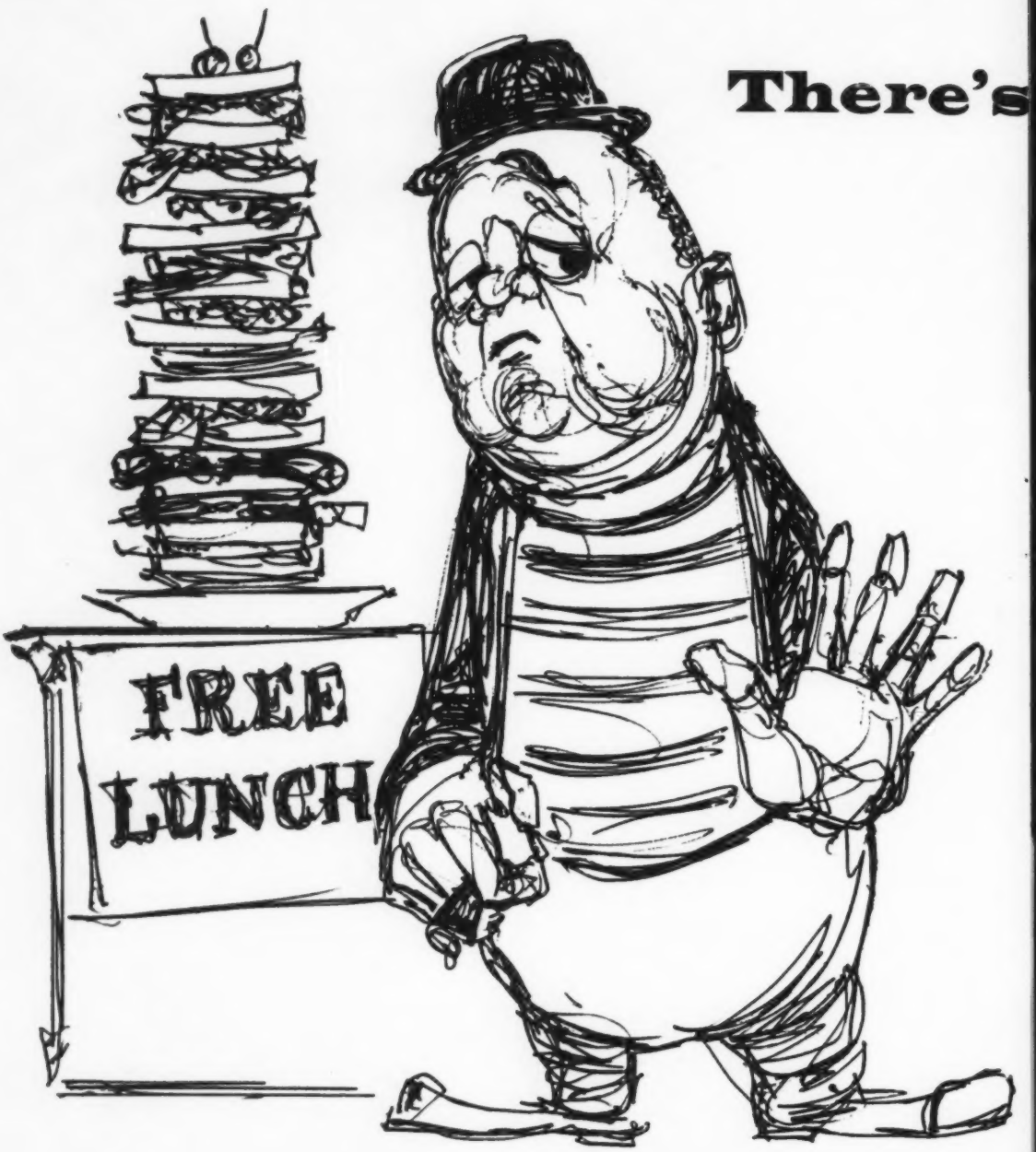

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No Such Thing As...

Everybody who thinks about it realizes that the wily proprietor of Joe's tavern is not running a charitable institution. His free lunch will be paid for somehow . . . by someone other than Joe.

You can apply this free lunch type of thinking to the telephone business too. When you receive an absurdly low quotation on telephone supplies . . . you might ask yourself . . . what is this company planning for the future of my company? Or . . . for the future of the whole telephone industry?

We must—here at Leich—offer fair and competitive prices to continue in business. Just as important, we must make a profit. For part of every penny we earn goes back into our (and your) business in the form of research, product development, improvements in facilities and personnel.

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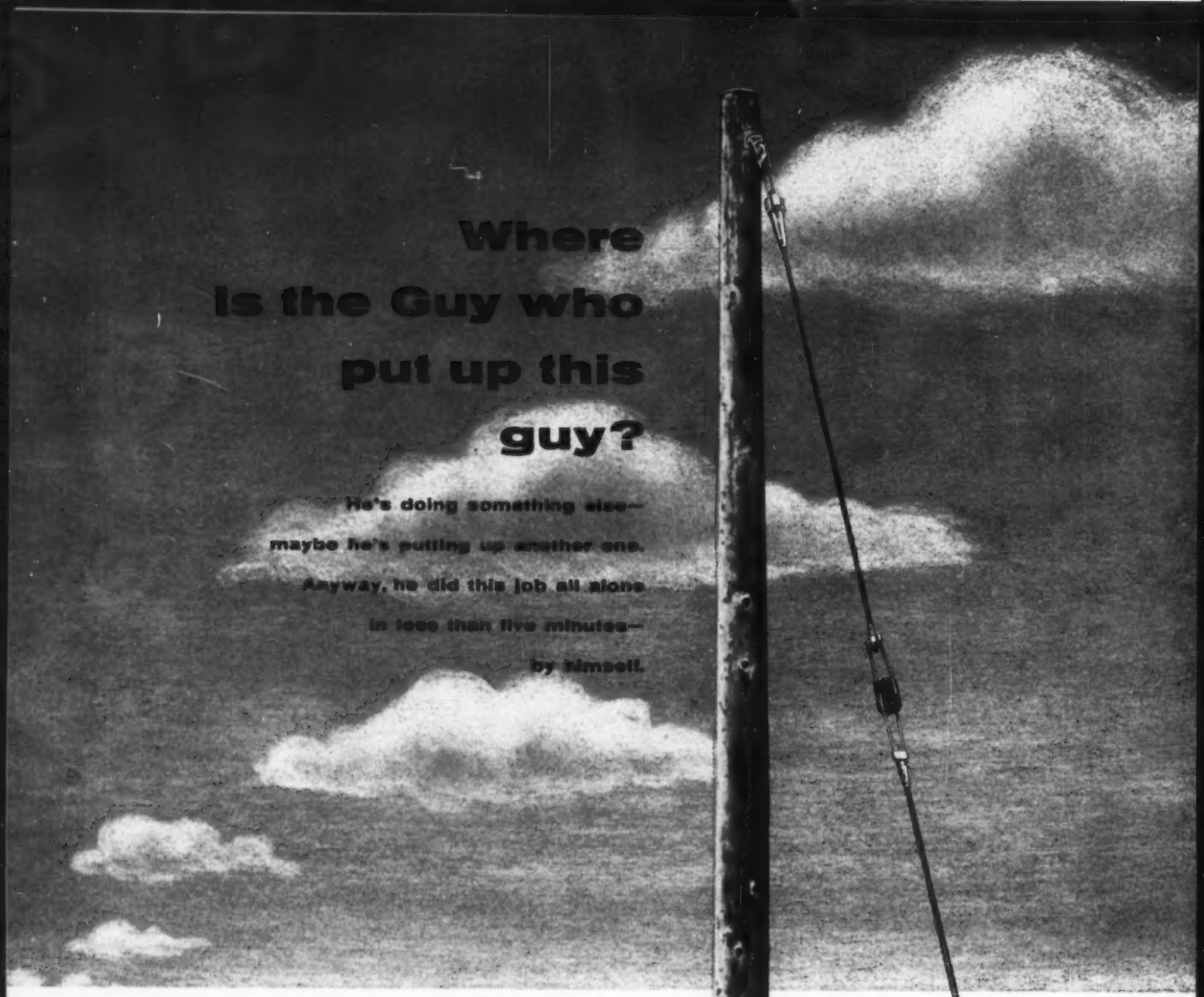
Where is the Guy who put up this guy?
He's doing something else—
maybe he's putting up another one.
Anyway, he did this job all alone
in less than five minutes—
by himself.

STRANDVISE is made
for strand sizes 3/16", 1/4", 5/16", 3/8", and 7/16"
NO MATTER THE GRADE.
Please pick your size, fill in
the coupon and mail it today.

Reliable

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Mr. Reliable:
WE DON'T BELIEVE IT BUT—we want to give STRANDVISE a fair trial. You may send 4 of them size ( ) without charge. Better send your instructions for installing and a catalog-price sheet, too.

Signed_____

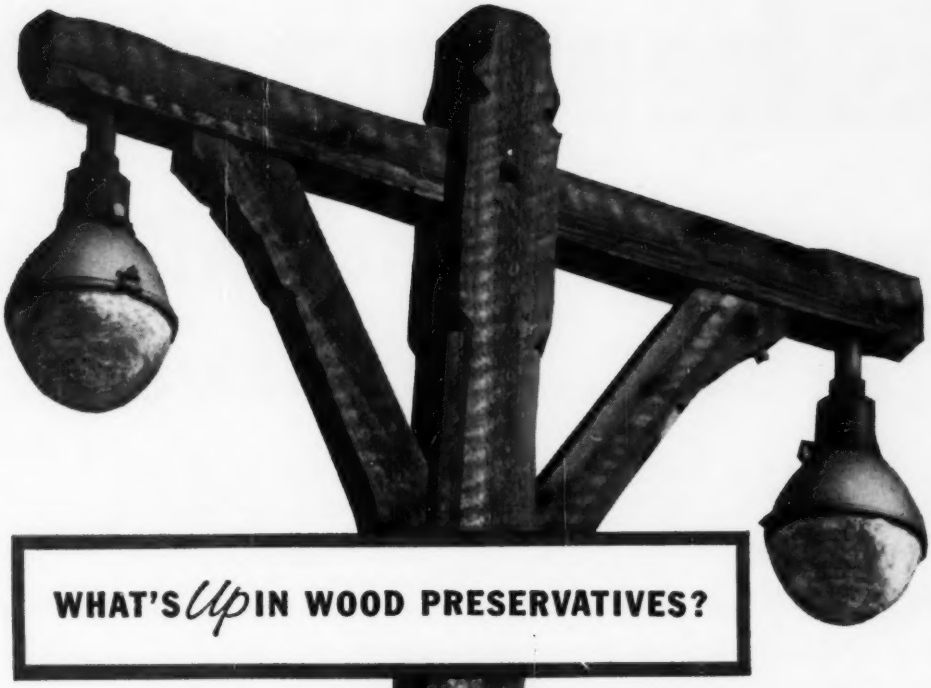
Company_____

Street No._____

City_____ State_____

60 YEARS OF INDEPENDENT TELEPHONY 1897 1957

This STRANDVISE guy was put up complete before any tensioning tools were applied to the strand



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WIRELINE TOLL CARRIER...permits your present wires to carry more revenue. With Lenkurt 33A or 45C open-wire carrier you can start with a single channel and add more as your toll requirements grow. Installation, maintenance and expansion are easy with a Lenkurt integrated carrier package; easy on the budget, too.

Don't delay. Ask for facts and figures today. Call your Automatic Electric representative or mail this coupon for complete system descriptions.

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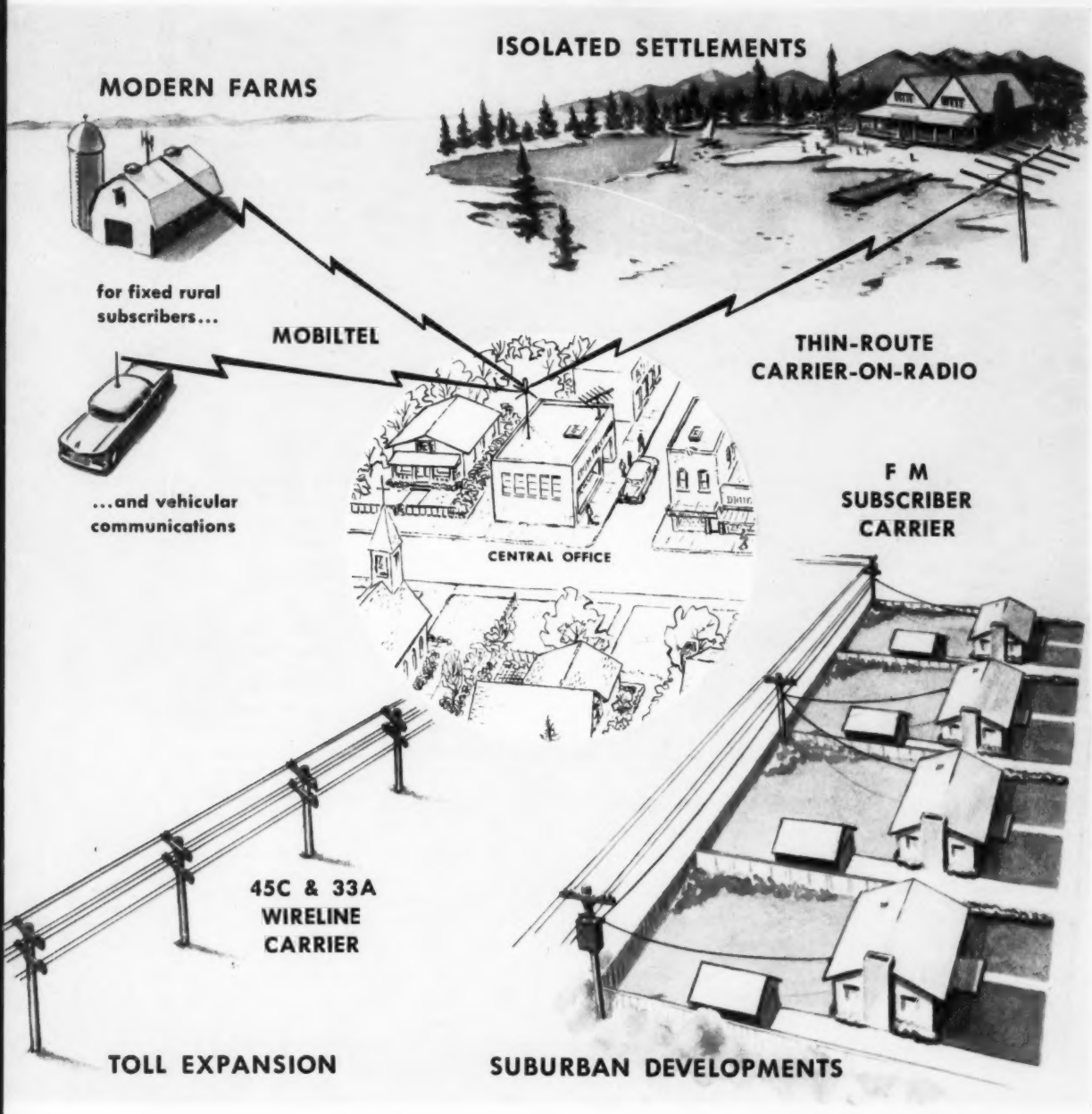

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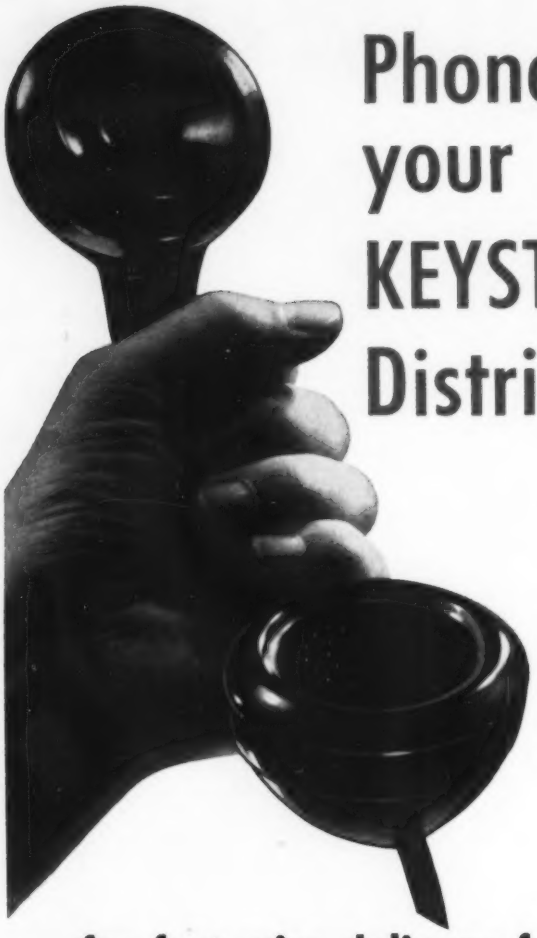

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Junior Achievement—

Hope for the Future

AMERICA'S free enterprise system is under attack. It is besieged, both at home and abroad, by relentless, often fanatically determined, enemies. The outcome of the worldwide struggle between capitalism and communism, for example, is by no means a foregone conclusion.

The ultimate decision rests in the hands of youth. Whether America's youngsters will inherit a free world or an enslaved one depends largely upon their own spirit and resolution. These, in turn, will depend upon how fully youth is informed as to what is at stake. This responsibility lies with their more experienced elders.

Probably the best way today's businessmen can be sure of passing on the American heritage unimpaired is by supporting Junior Achievement. This remarkable organization teaches young people the basic facts of business life under the profit and loss system in the best possible way—by enabling them to operate their own firms!

People learn by doing, and in Junior Achievement our young people organize and operate miniature companies. They issue stock, manufacture products and market them, and perform all the essential operations of conducting a successful business. They must perform these functions properly or their business fails. If they do perform them properly, it thrives and prospers. What young person will not develop sturdy individual character under such training?

To foster the growth of Junior Achievement, operating telephone companies and the telephone industry manufacturers and suppliers are encouraged to sponsor JA companies wherever and whenever convenient.

TELEPHONY has supported the Junior Achievement programs through periodic reports in Ray Blain's "Plant Man's Notebook," and most recently in a lead story, "Junior Achievement in the Telephone Industry," in the Aug. 9, 1958 issue. Testimony to the values inherent in sponsoring JA companies was clearly set forth in these articles and corresponded to the bases stated briefly above.

Another aspect of the accomplishment of Junior Achievement, proceeds from the fact that stockholders in JA companies in 1958 numbered over 250,000. The vast majority of these individuals became stockholders for the first time. Having received a simple, understandable annual report from their JA company, these quarter of a million shareholders undoubtedly developed a greater understanding and appreciation for the needs and benefits of private capital.

There is no better way of teaching free enterprise. Junior Achievement deserves the support of telephone people everywhere.

IN THE NATION'S CAPITAL

BY FRANCIS X. WELCH, WASHINGTON EDITOR

House continues life of Sub-committee on Legislative Oversight. Strike violence included in Congressional bills to halt "hate bombings" and acts of arson and sabotage against schools, churches, synagogues, etc. House committee proposes probe into "political propaganda efforts" by power companies.

THE HOUSE of Representatives on Jan. 27 approved by voice vote without a single "nay" a routine resolution to continue the life of the so-called Sub-committee on Legislative Oversight. Maybe it was the result of smooth tactics on the part of the House leadership, but the whole thing went through without a murmur of opposition. The House not only gave to its Interstate and Foreign Commerce Committee authority to extend the influence peddling investigation of its sub-committee, but it also gave similar sub-committee investigating authority to its Judiciary, Space, and Veterans Affairs committees.

Because of the controversial aspects of the Legislative Oversight Sub-committee's investigation of the Federal Communications Commission last year, and the departure of Sherman Adams from the White House staff, at least some token opposition had been expected. A number of Republican members felt that the sub-committee's activities were too strongly flavored with partisan politics; too slanted in one direction. But, nothing came of such dissent. The Legislative Oversight group is now in business for at least another year. And the FCC probably has not heard the last of it yet.

There was some possibility that the House may have inadvertently authorized some duplicate investigation activity when it gave similar powers to the House Judiciary Committee. As in the case of Representative Harris (D., Ark.), who heads both the Interstate Commerce and the Legislative Oversight Sub-committee, Representative Celler (D., N. Y.) also doubles as committee chief and sub-committee investigation chief. Celler is chairman of both the House Judiciary and its Anti-Monopoly Sub-committee. Furthermore, Celler is known to have his own ideas about reforming the FCC and has suggested legislation of his own to impose a "code of ethics" on the FCC. So, there may be a double ring investigation of the FCC this year and, in the case of the Celler group, the telephone industry may be brought into the act as it was last year.

Anti-bombing Bills

It is unpleasant to recall the events of a couple of years ago when some regrettable violence characterized some labor strikes in both the Bell and Independent branches of the telephone industry. So, let us not recall the specific experiences and simply concentrate on a recent Washington development which seems to point to the possibility and likelihood that Congress may take some steps to avoid that sort of thing in the future.

This may seem strange and even surprising in the 86th Congress, which came to Washington with a reputation of being strongly pro-union. The explanation lies in the fact that what Congress is thinking about doing (to bar future violence) does not stem from any controversy in the labor field at all—but in the equally controversial field of civil rights. Yet, if Congress passes this measure there can be little doubt that it would apply just as well to labor disputes as to the so-called "hate bombings" which formed the basic provocation for such legislation.

It is, in a way, a compliment to the political power of organized labor to say that the only way the present Congress could ever be persuaded to penalize strike violence, would have to come about indirectly and ostensibly for a different reason entirely. Yet, it is a fact that another form of violence —namely, the hate bombings, the acts of arson, sabotage, etc., against schools, churches, synagogues, and the homes and property of minority races, may well move Congress to take some positive action in the whole area of unjustified violence, including strike violence.

As far as strike violence, per se, is concerned, bills in Congress are nothing new. They have gotten nowhere in the past, for a very good reason which needs no further discussion.

But, the bills against "hate bombings" furnish a new setting and perhaps a more fruitful one. There are several bills in Congress on the subject. One is the Civil Rights Bill of 1959, sponsored by none other than Senate Majority Leader Johnson (D., Tex.). The anti-bombing section of this bill is broad enough to order out the G-men because of violence against a telephone exchange, just as clearly as against an attempt to blow up the home of a negro or a church or school.

Another Senate bill along this line is sponsored by Senator Keating (R., N. Y.) and 14 other senators of both parties. It would permit a *death sentence* for any bomb violence which resulted in the loss of human life. That is pretty strong medicine, but Congress seems in the mood to consider it favorably. Even threats of such violence could be punished with a year in jail and $1,000 fine or both.

The senators are obviously trying to protect religious, educational, and racial minority institutions. But, obviously it could not withhold the cloak of such protection from business property threatened by a labor dispute. Even the most rabid union proponent

REA Approves Five Telephone Loans

Five telephone loans approved during the week of Jan. 19 by the Rural Electrification Administration will bring service for the first time to 1,223 farm families and other subscribers, the U. S. Department of Agriculture announced on Jan. 28. In addition, telephone service for nearly 1,700 subscribers will be improved as a result of the loans.

The loans are as follows:

Adams Telephone Cooperative, Camp Point, Ill.; $293,000; Jan. 19.

These funds will enable the borrower to improve service for 459 existing subscribers and to furnish initial service to 223 rural families. As a nucleus for the new service, the borrower plans to acquire the Plymouth Farmers Switchboard Co. and 13 farmer-owned lines which are served by the Plymouth company. These facilities are now providing magneto service. The borrower proposes to replace the magneto central office at Plymouth with a new automatic building.

The Adams cooperative has now received loans totaling $1,047,000 which will make possible new and improved service to 2,299 rural subscribers. Seven of the proposed eight exchanges are now furnishing dial service to approximately 1,475 subscribers.

LeRoy Grimes is president of the Adams cooperative and Dean Searls is manager.

•

Tri-County Telephone Co., Inc., New Richmond, Ind.; $697,000; Jan. 19.

These funds will enable the new borrower to improve service for 1,160 subscribers and to furnish initial service to 311 rural families.

The Tri-County Telephone Co. was incorporated in February 1958. Its facilities will consist of the following properties which will be merged into the corporation: Akers Telephone Co., Wingate; Linden Telephone Co.; and the New Richmond Telephone Co. The merger properties consist of automatic exchanges at Odell and New Richmond; and magneto exchanges at Linden, Romney, and Wingate.

Construction plans of the borrower include three new automatic central offices—one near Linden to serve the Linden, New Richmond and Romney communities, one at Wingate to serve the Odell and Wingate areas, and one near South Raub to serve the northeast portion of the system. In addition, new headquarters facilities are scheduled at New Richmond.

Russell G. Miller is president and manager of Tri-County Telephone Co.

•

Tygart Valley Telephone Co., Mill Creek, W. Va.; $60,000; Jan. 19.

REA loans to this borrower now total $346,000 which will bring new and improved service to 721 rural families.

Byron Woods is president and manager of the Tygart Valley Telephone Co.

•

Logan County Rural Telephone Cooperative Corp., Auburn, Ky.; $393,000; Jan. 20.

These funds will enable the borrower to furnish initial service to 407 rural families and to improve service for 74 present subscribers. The existing subscribers now receive magneto service from the Rochester Telephone Co. The borrower proposes to acquire and integrate these facilities.

A new automatic central office is scheduled for construction at Rochester. A portion of the loan funds will be used to complete the authorized system.

REA loans to this borrower now total $1,136,000 which will benefit 2,144 rural families. Three of the four exchanges of the system are now in operation serving approximately 1,300 subscribers.

W. Gaston Coke is president and Grover Corum is manager of the Logan County cooperative.

•

Midland Telephone Co., Champaign, Ill.; $681,000; Jan. 23.

At present, the Midland company, a new borrower, provides magneto service to 870 subscribers.

It plans to convert its system to automatic operation and to furnish dial service to 282 new subscribers in its operating territory. New automatic central offices are scheduled to be constructed at Dorchester, Modesto, Scottville, Shipman and Woodburn.

James L. Capel is president and Max G. Hoagland is manager of the Midland company.

in Congress would hardly care to take the position that it is a punishable crime to threaten the home of a negro citizen or a church, but perfectly all right (as far as federal law is concerned) to blow up a telephone exchange or cable facilities.

The Johnson Bill, particularly, is very clear about this. It would make the mere transport of an explosive for such purposes of violence a violation of federal law subject to heavy penalties. The bill protects any building or facility whether real or personal property, whether used for business, educational, religious, charitable, or civic purpose. This is a double enforcement provision. First, the FBI could be assigned (by the U. S. Attorney General) to any bombing, arson, or other incident of violence which the Justice Department had reason to believe was prompted by motives contrary to the intent of the law. Secondly, any state governor or mayor, or even a city council or county commission could ask the attorney general to assign the FBI to investigate and prosecute such suspected violations.

Think what a weapon this would place in the hands of the state or local authorities in any future labor dispute involving violence of this nature! They could call on the FBI just as quickly as if some crank were trying to blow up a college or a cathedral. Unless somebody does some fast and subtle work of obstruction at the committee level, it is difficult to see how this legislation can fail to gain the approval of Congress and the President. Open opposition by organized labor would be unthinkable, because it would be tantamount to admitting not only that violence is a strike weapon, but that there is a calculated intent to use it, as such, in the future.

Another Electric Industry Probe?

The FCC and the other regulatory commissions are not the only ones in

the public utility area that may get some attention at the hands of the present Congress. Last week the House Government Operations Committee popped off at an old target—the electric utility industry. They want a "full-scale" joint congressional investigation of alleged "political propaganda efforts" by the power companies. Such a probe was called for in a report by the House Government Operations Committee, which said that the proposal is at least two years old.

The House committee document was issued as a status report on what progress had been made on the committee's recommendations since the last Congress. It was made available to the press, but it still must be approved by the full committee. One of the recommendations was that both houses of Congress launch a joint investigation to find out if there was "an organized effort" by private power companies to influence the administration, Congress, state governments "and the political life of the nation."

The report charged that the electric power companies have stepped up their issuance of "anonymous or semi-anonymous literature" in recent months. The report claimed much of the power company literature was designed to influence public officials and affect public opinion and had "distorted facts and either verged upon — or crossed — the border of fair comment."

To old-timers around the Washington scene, this news may seem a little like turning on a real old movie on the television set. But, the circumstances are really quite different from the times back in the late twenties and early thirties when the so-called "power trust" investigation by the Federal Trade Commission got under way and continued for nearly eight years. It may be recalled that circumstances growing out of that investigation eventually led to the Public Utility Holding Company Act of 1935—for the gas and electric utilities.

But, the electric power companies of 1959 are not in the same position as they were back in the days of the late Hopson and Insull and the "phony" telegrams which built the former Senator from Alabama, Hugo Black (now a member of the U. S. Supreme Court) into a national figure over night. The electric power companies today can point to a record of solid accomplishment, in the public service through war and peace. And, if they have been resorting to self-serving propaganda, it should be understandable, in the light of the steady march of public ownership, which has engulfed about one-fifth of the electric industry. The electric utilities are really battling for eventual survival as a private form of enterprise; and if they did not speak up in their own defense, it would be most surprising.

It is probable that the people behind this recommendation to investigate the power companies are really more interested in softening up the opposition to public ownership measures bound to come up in the new Congress. The TVA self-financing revenue bond bill, for example, was blasted by the U. S. Comptroller General last week. But if the public ownership bloc can hang the "power trust" label on the opposition, there are some congressmen who would be tempted to vote for TVA revenue bonds without even reading the bill. As the late Harold Ickes once said, in this connection, it is awfully hard to shake off the affliction of "political halitosis," once a person or an industry gets a reputation for having it.

Convention Calendar

1959

Association	*Date*	*City*	*Hotel*
Minnesota	Feb. 15, 16, 17 and 18	Minneapolis	Leamington
Texas	Mar. 2, 3 and 4	San Antonio	Hilton
Kentucky	Mar. 3	Lexington	Phoenix
Iowa	Apr. 7 and 8	Des Moines	Fort Des Moines
Ohio	Apr. 13, 14 and 15	Columbus	Deshler Hilton
Illinois	Apr. 20 and 21	Peoria	Pere Marquette
Nebraska	Apr. 21 and 22	Lincoln	Cornhusker
Indiana	May 6 and 7	Indianapolis	Claypool
Wisconsin	May 13 and 14	Milwaukee	Plankinton House
Kansas-Missouri*	May 25 and 26	Kansas City, Mo.	Continental
Pennsylvania	June 1, 2 and 3	Buck Hill Falls	Buck Hill Falls Inn
California	June 3, 4 and 5	Los Angeles	Ambassador
Washington-Oregon*	June 11, 12 and 13	Seattle	Olympic
New York	June 15, 16 and 17	Schroon Lake	Scaroon Manor
Alaska	September	Anchorage	Unannounced
Tennessee	Sept. 9 and 10	Nashville	Hermitage
Arkansas	Sept. 14 and 15	Hot Springs	Arlington
Michigan	Sept. 15, 16 and 17	Grand Rapids	Pantlind
Rocky Mountain	Sept. 16, 17 and 18	Salt Lake City, Utah	Utah
New England	Sept. 21, 22 and 23	Bretton Woods, N.H.	Mt. Washington
USITA Annual Convention	Oct 11, 12, 13 and 14	Chicago	Conrad Hilton
Virginia	Oct. 29 and 30	Roanoke	Roanoke
Alabama	Nov. 9 and 10	Birmingham	Thomas Jefferson
Oklahoma	Nov. 18 and 19	Oklahoma City	Skervin

*Joint Convention

FCC Bans TV Booster Stations

The FCC has moved to put an end to the so-called TV booster stations. But, the commission may not be able to make its proposed order stick, if mountain states senators can drum up enough opposition. A TV booster station is a radio-frequency using form of repeater station, which can receive and pass along television programs in difficult terrain in such a way as to improve local reception. An FCC report says that these boosters are not regulated and can cause interference when improperly operated. An alternative would be, of course, to utilize community antenna systems whereby cable or other lead-in wiring could carry signals from the point of reception to the receiving sets. But this would involve considerable expense, especially in open mountainous country, and naturally there is some resistance to it.

In announcing its intended ruling, the FCC also urged greater conversion to ultra-high frequency telecasting. This would also involve considerable expense of converting existing television receiving sets, plus the deterrent factor that there are not many ultra-high frequency programs being telecast.

Anyhow, Senator Allott (R., Colo.) has introduced a resolution to put Congress on record against the proposed

(Please turn to page 62)

A Bright Future With Planning and Marketing

By F. E. NORRIS*

FOR THE purpose of making a point, I recall that in recent years we have witnessed many great changes in the art of telephony. Such marvels as the transistors, the coaxial cable, automatic toll ticketing and microwave—to name a few—are among the technological advances which are finding increasing application with us. All of our forward progress, however, has not been technological. Some has been administrative. Machine billing, scientific expense controls and work scheduling and higher service standards fall into this latter category.

Also falling into the category of administrative advances are two fairly new arrivals; formalized planning and merchandising. It is these last two to which the remarks to follow will be directed.

Market Can be Created

To say that merchandising is *new* is not quite accurate. First of all, as an art, merchandising is as old as the hills. We see evidence that this is so every time we turn on the TV or pick up a newspaper or a magazine. What then is there about merchandising to cause such a stir? It is this. For the first time, and quite recently, we have admitted that the fine points of the art of merchandising apply to telephone service as well as to manufactured products.

The extent our industry expanded its lines and services since the end of the war gives ample proof for all to see that we, as an industry, have recognized our responsibility in rendering an essential public service. Our telephones and the messages we handle have increased faster than the population—and we have more telephones in the average home than ever before.

I think from these facts has emerged, more than from anything else, the further fact that we are capable of doing more than merely *meeting demands placed on us* for telephone service. We now know we can *create* a market for our service in much the same way a manufacturer creates a market for his products.

Much time and careful thought will be used before we are as successful in marketing our service as manufacturers now are in marketing their products. And, I suspect the degree of our success and the date by which we achieve it will, to a large extent, depend upon how well we, as an industry, work together in such matters as publicity, exchanging basic data resulting from surveys and, in general, satisfying the markets our widespread publicity and promotional programs create. I think the value of coordinated effort will become apparent as the term "merchandising," or perhaps more accurately, marketing, assumes its new meaning and importance with us. When we see in the art of marketing the necessity of learning and catering to customer wants instead of waiting for him to make demands of us—of arranging with our suppliers to furnish the facilities needed to meet those wants—of carefully developing promotional programs so as to create a market for those wants, the desirability of a degree of common thought in the industry will become apparent. For it would be quite difficult, if at all possible, for each of the hundreds of telephone companies in this country to develop a true marketing program with no consideration for the advantages of the mass market and of testing markets with inadequate samples.

Selling is End Product

May I call your attention to the fact that I did not mention *selling* when mentioning some of the components of marketing. This intentional omission was not because selling is an unimportant part of marketing. It certainly is important. More than that, it is the *purpose*—the end result we are seeking. The mention of selling was omitted to emphasize that it does not by itself constitute complete merchandising or marketing—a point which justifies emphasis only because there seems to be some misunderstanding about it.

I mentioned that much time may be needed to develop and have in working order a good, comprehensive marketing program. That much time is needed is inherent in the character of some of the problems a program like this poses. I'll illustrate the point.

There is no doubt that we've had good reason why we should keep in

*Mr. Norris is Vice President-Planning and Development of General Telephone Corp., New York City. He presented this address at the recent convention of the Florida Telephone Association.

service on the customer premises apparatus which he, the customer, resented our having there—resented because of its style or its vintage. We were inclined to the view—possibly from fiscal necessity—that if the apparatus met *our* operating standards, it should remain in service.

Without suggesting we should have whimsical policies, I think there is merit in seriously questioning whether it is in the best interests of the telephone company to deny customer desires merely because the apparatus is functioning according to our standards.

Essentiality a Basis

This point is best illustrated, I think, with color telephones. A color which is in vogue today may be passé tomorrow—yet the color itself has nothing to do with basic telephone service. To give the customer the color he wants —and as often as he wants it—naturally implies that he will be charged for the earlier-than-usual write-off of the unwanted color. When he gets what he *wants*, he will be willing to pay for it. But, I don't think we can change our policies over night to bring this about.

Another of our beliefs that might be reviewed concerns the *essentiality* of our service as a basis for developing our business. Telephone service is, of course, essential for American business, for social activities and for the protection of life and property. The public has long since been sold on this. The government recognizes it—even though they are taxing essential telephone service along with luxuries. The question is whether, from the standpoint of future merchandising, it wouldn't be better to take the essentiality of the service for *granted* and to concentrate on "selling" telephones that fit into the decor scheme, into changing ideas of convenience and as a way of life. In other words, make the telephone primarily a fashion item—but an indispensible one.

Main Line Vs. Party Line

Another point I think worthy of pondering may be quite controversial with some—and that is whether we should not develop main or individual line service in preference to party line service. If you will grant that I might know a program to accomplish this cannot be carried out over night, that it involves considerable capital as well as producing additional revenues and reducing certain expenses, I'll give you my thoughts—and they are quite brief.

First, main line service is better than party line service, so the more of it we have the more our customer will be satisfied with us.

F. E. NORRIS

Second, and this is the main point I want to develop, is that to install all the telephones in a home we think the public wants, main line service is technically required. This doesn't apply only to extensions as we know them today but also to other communications in the home such as home intercoms—for the larger homes—and other devices.

I wouldn't care to say at this time there is no place in the future for party lines but I do think we might seriously consider whether we should not place greater emphasis on main line development with our long-term merchandising program in mind. Whatever we do about this we can be sure a long time will be needed for substantial results.

In speaking of these time elements, there is little danger, I am sure, of leaving the impression that these knotty, time-consuming problems must be dealt with before a marketing program can be effective. That, of course, is not true. There are many paths leading to our marketing goals. Since our goals are several, we need not reach all to make worthwhile gains. So, as I see it, there is no reason to let the tough time-consuming problems deter us from making the gains which are immediately attainable.

In considering a merchandising program it is fair to ask: What will it accomplish? Profits, of course, are what we are aiming for. To lead to that, however, let me rephrase the question. What is the maximum number of stations we can develop in our exchanges, say over the next 15 or 20 years?

A realistic answer to that question will afford a sound basis for a long-range plan by which we can shape the future — a future which otherwise might shape us. By way of a suggested approach toward an answer, a brief discussion might be constructive.

Three Basic Questions

For this purpose let us first consider residence service only. The basic questions to be answered are these: (a) How well have we done up to now, (b) how well can we do with a good marketing program, and (c) how long will it take to do it?

How well have we done up to now? The best measure of this is to make an estimate from available information, of the number of households in our area. This would be done for some convenient, recent date. The next step would be to divide the number of residence primary telephones by the number of households. From this would derive, of course, the percentage of households with telephones today. This, then, can be compared with the optimum percentage we think should prevail as well as with the results of others.

How well can we do? This requires an estimate for the future—and some guide lines are needed. This is a question that cries for a degree of common industry thinking, as mentioned a moment ago. The result of field "saturation tests" and surveys that you and others make furnishes reference points for an answer to this question. In the General System, to illustrate, about 62 per cent of our households have telephones *now* and we think this can, *in time*, be increased to 91 per cent.

How long will it take to increase the density of telephones in households from what it is to what we estimate it can be—in our case, from 62 per cent to 91 per cent? Generally speaking, I think it would be a span of a good many years. How many will depend on the starting point in comparison with the objective. In any event, it is a matter of judgment. For whatever interest it may be to you, we estimate it will take about 18 years to attain a density of 91 per cent—though I wouldn't be too surprised if that period were considerably shortened.

Estimating residence extensions follows about the same process. We determine the ratio of extensions to primaries today and then estimate what the ultimate development can be and how long it will take to reach it. This, then, becomes our residence extension objective. Again, for whatever interest it holds for you, we believe our extensions will be 103 per cent of residence primaries by 1976.

Business telephones are treated the same way—in principle. Here, however, we suggest the use of a per-100-population unit instead of households. We think, by 1976, we, in the General System, will develop about 12.5 non-residence stations per 100 of population —probably a conservative figure.

By way of emphasis, your attention is directed to the fact that the future is *not* being estimated by past experi-

(Please turn to page 52)

Telephone Organizations Build, Maintain DEW Line, White Alice

By RAY BLAIN

THE DEW LINE—short for Distant Early Warning Line—is an integrated chain of more than 50 radar and communication stations stretching 3,000 miles from the northwest coast of Alaska to the eastern shore of Baffin Island opposite Greenland. The original DEW Line is within the Arctic Circle over its entire length, and for much of the distance crosses country hitherto unexplored.

(Both the DEW Line and White Alice should be of particular interest to telephone men because two companies aligned with the industry took over the responsibilities of constructing and maintaining and operating the two national defense systems.)

Dipping down from the southwestern tip of Alaska and curving upward toward the Kamchatka Peninsula of Russian Siberia, a necklace of harsh but beautiful volcanic islands forms one of America's last frontiers. Here, in a damp, dank world of fog, wind and rain, a team of technicians and engineers gathered from the Bell System's companies is now working under the leadership of Western Electric to complete the Aleutian segment (Project 540) of the nation's northern radar defense network.

This strip of radar outposts, for which Western Electric supplies shipments of equipment and apparatus, will stretch from the Alaskan mainland across the northern reaches of the Pacific Ocean. When completed, they will work in relationship with both WHITE ALICE (also built by Western Electric) and the original DEW Line to form an unbroken chain of electronic early warning and communications sites across the northern rim of the North American continent.

The purpose of the DEW Line is to provide the United States and Canada with the earliest warning of the approach of airborne objects over the polar region. Its advantage—the extra time it gives us to rally our defense could mean the difference between successful defense and national disaster.

MIT Group Made Study

The DEW Line grew out of a detailed study made by a group of the nation's foremost scientists in 1952—the Summer Study Group at the Massachusetts Institute of Technology. The subject of their study was the vulnerability of the United States and Canada to air attacks, and their recommendation was that the Distant Early Warning Line be built across our Arctic border as rapidly as possible.

Soon afterward, Robert A. Lovett, who was then Secretary of Defense, asked Cleo F. Craig, then president of American Telephone & Telegraph Co. if the Bell System would undertake the job of building the line. Mr. Lovett stated that the Department of Defense had selected the Bell System for this undertaking because of its "unique qualifications," and he strongly urged that the assignment be accepted.

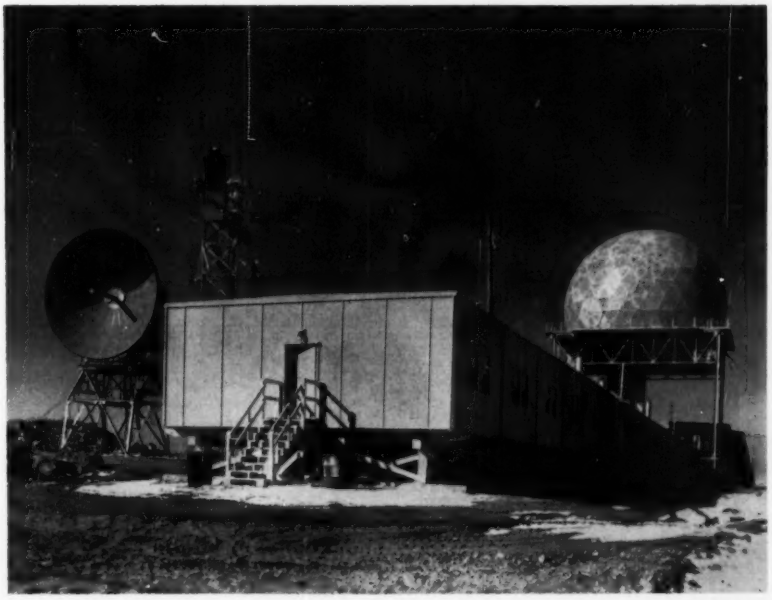
The assignment was accepted and the responsibility for the over-all management of the design and construction of the line was given to Western Electric. Immediately, Western started recruiting a team to do the job from Bell telephone companies, the Long Lines Department of AT&T, Bell Laboratories and from Western Electric's own divisions.

Before the job was completed, men with the necessary knowledge, skills and experience were drawn from Bell telephone companies in every state in the United States. Much of the responsibility was delegated, under close supervision, to a vast number of subcontractors, suppliers, and U. S. military units. It has been estimated that by the time the original DEW Line was completed, some 25,000 people had been engaged directly in planning and building it.

The initial contract with the Air Force provided for the design and construction of a small experimental system to determine at the beginning whether the idea was practicable. The designs of communication and radar detection equipment available at that time were known to be unsuited to the weather and atmospheric conditions in the Arctic.

Prototypes Built

Prototypes of several stations were designed and built in Alaska and in a rural section of Illinois in 1953. While few of the original designs for either building or equipment were retained, the trial installations did prove that the DEW Line was feasible and furnished a background of information that led to the final improved designs



Typical DEW Line auxiliary station showing 30-foot dish AA tower, building train, radome and back of 60-foot dish.

of all facilities and final plans for manpower, transportation and supply.

With the experimental phase completed successfully, the Air Force asked Western Electric to proceed as rapidly as possible with the construction of the entire DEW Line. This was in December, 1954, before the route to be followed in the eastern section had been even determined.

A target date for completion of the line and having it in operation was set for July 31, 1957. This made available only two short Arctic summers totalling about six months in which to work under passable conditions. The bulk of the work would have to be completed in the long, dark, cold Arctic winters.

From a standing start in December, 1954, many thousands of people with countless skills were recruited, transported to the polar regions, housed, fed and supplied with tools, machines and materials in order to construct physical facilities—buildings, roads, tanks, towers, antennae, airfields and hangars—at some of the most isolated spots in North America.

Siting crews covered the area—first from the air and then on the ground—to locate by scientific means the best sites for the main, auxiliary and intermediate stations. These hardy men lived and worked under the most primitive conditions. They covered vast distances by plane, "snowmobile" and dog sled, working in blinding snowstorms with temperatures so low that ordinary thermometers could not measure them. But they completed their part of the job on schedule and set the stage for the small army of men and machines that followed.

460,000 Tons of Material

Military and civilian airlifts, huge sealifts during the short summer, cat trains and barges distributed vast cargoes the length of the line to build the permanent settlements needed at each site. In all, 460,000 tons of materials were moved from the United States and Canada to the Arctic by air, land and water.

As the stacks of materials at the station sites mounted, construction went ahead rapidly. Sub-contractors with a flair for tackling difficult construction projects handled the bulk of this work under Western Electric direction. Prodigious quantities of gravel were produced and moved. Concrete was poured in the middle of the Arctic winters, buildings were constructed, electricity, heat and water provided, huge steel antenna towers were erected, airstrips and hangars were built.

To get an idea of what was accomplished, look at it this way: In transportation and construction effort, building the DEW Line was roughly equivalent to the job of taking 2,000 Statues of Liberty dismantled into reasonable sized units, moving them from New York Harbor to dozens of spots inside the Arctic Circle, and putting them together again in darkness, blizzards and sub-zero cold.

White Alice Station at Pillar Mountain. Shows 60-foot antennas and building. Note access road in center background.

Construction work required to build housing, air strips, hangars, antennae and towers was performed by sub-contractors. In all, over 7,000 bulldozer operators, carpenters, masons, plumbers, welders, riggers, electricians and other tradesmen from the United States and Canada worked at breakneck speed under conditions so difficult it is a wonder the job was completed in such a short time.

The native Eskimos provided their share of workers on the line, too. Although baffled at first by modern machines and construction methods, they were quick to catch on. Whether driving dog teams or bulldozers, they proved conscientious and dependable.

To U. S. military and naval units fell much of the job of transporting mountains of supplies to the northern sites. More than 3,000 Transportation Corps soldiers were given special training to prepare them for the job of unloading ships in the Arctic. They accompanied the convoys provided by the U. S. Navy and raced them during the few weeks the ice was open to land supplies at dozens of spots on the Arctic Ocean shore during the summers of 1955, 1956 and 1957.

Commercial Pilots Used

Scores of commercial pilots, flying everything from bush planes to four-engine aircraft, were the backbone of one of the greatest airlift operations in history. Helping them were U. S. Air Force crews of the giant "Globemaster" and "Flying Boxcars." Together they provided the only means of access to many of the stations during the winter.

If the ground were frozen solid the year round, the construction job would have been far easier. Unfortunately, in warm weather the top few feet of earth would thaw and become a swampy bog, unable to support buildings or vehicles. As a result, roads and airstrips had to be covered with up to 6 feet of gravel to keep the ground from thawing. Heated buildings had to be set on pilings extending down deep into the permanent frozen ground or built on pads of gravel up to 12 feet deep. The main problem was to find the gravel. Often, it had to be trucked for miles or produced by crushing rock.

After the building came the installation of radar and communication equipment, then the thorough and time-consuming testing of each unit individually and of the system as an integrated whole—both handled by Western Electric technical personnel.

Finally, all was ready, and on July 31, 1957—just two years and eight months after the decision to build the Distant Early Warning Line was made—Western Electric turned over to the Air Force on schedule a complete, operating radar system across the top

(Please turn to page 51)

Microwave Techniques

By HAROLD B. McKAY

Part 3

A MICROWAVE installation as used by a telephone company consists of many parts and circuits besides the actual high frequency microwave equipment. First of all there must be multiplexing equipment, that is, something that will take the numerous speech and signal channels and combine them for application to the microwave. This is like regular telephone carrier equipment, but whereas a regular carrier may handle up to a couple of dozen circuits, the carrier which backs up a microwave system may handle several hundred.

Even test equipment looks different at microwave frequencies. This is a combination unit containing a signal generator, frequency meter and power meter for testing transmitters and receivers in the 5825 to 7725 Mc range. (Photo courtesy Lambda-Pacific Engineering, Inc.)

This is because microwave will handle a broad frequency spectrum and ordinarily will carry more than a land line. Circuits which are going to be transmitted by microwave usually enter a carrier system and go from there to a group modulator or base band transmitting unit of some sort. This unit serves the purpose of combining the output from the several carrier channels and applying the result to the transmitting klystron which will generate the microwaves.

The receiving portion of the microwave installation must have, in addition to the actual microwave components, a series of amplifiers to bring the received signal up to usable level. From these it must go into the carrier equipment so that the several channels may be separated and sent on to the proper trunks. Appropriate power supplies for the different units are required and a fault indicator or some sort of an alarm system is needed to meet telephone standards. The latter, in addition to the usual telephone functions, may give an indication when either the transmitted or received microwave power fails, or if the circuit becomes excessively noisy.

All this equipment which "stands behind" the microwave installation follows the usual techniques for radio, carrier, and telephone work. However, the microwave portion, because it uses wave guides and klystron tubes, looks somewhat different than the rest of the equipment. Standard circuit drawings can be made to show the hook-up of microwave equipment. However, because microwave components look so vastly different than their counterparts at lower frequencies, they are sometimes hard to visualize.

Fig. 3.1 is an attempt to combine electrical circuitry with a drawing of the wave guide and its components. This is a simplified version of the high frequency end of an actual telephone microwave system. Note that when separated from the carrier, power and alarm equipment, it is actually very simple; it contains only two tubes.

In operation, the transmitting klystron VA222 oscillates at the microwave frequency, which in this case is in the 6,000 megacycle region. This tube is a reflex klystron and its frequency can be changed within limits

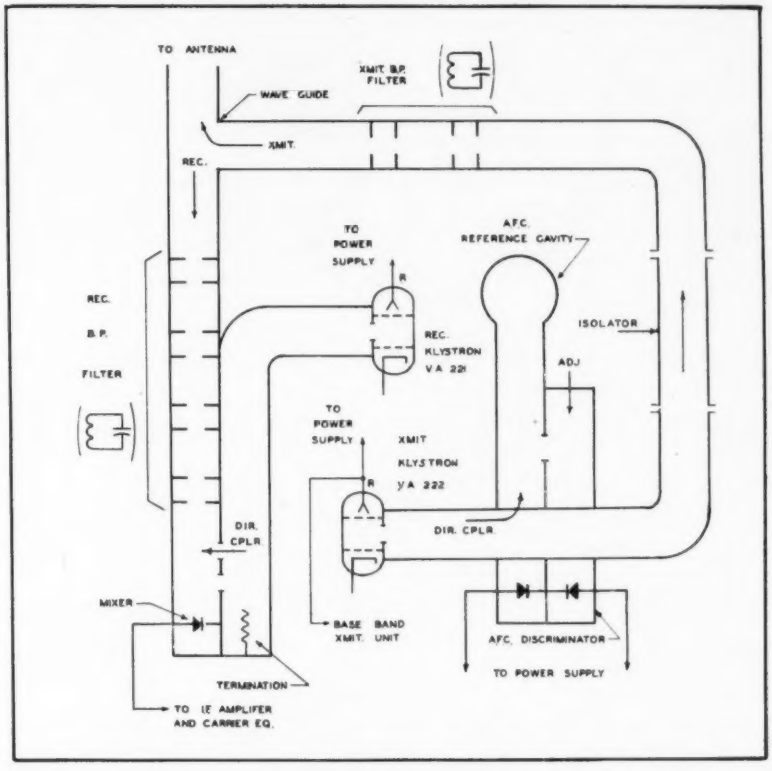


Fig. 3.1. This simplified schematic of a microwave transmitter and receiver shows the physical layout of the parts. The band pass filters, although equivalent to a tuned circuit, are simply small posts which project into the wave guide. They are tuned by a screw which projects into the guide. The termination for the receiving klystron is actually a small piece of plastic coated with a resistive material. This is mounted one-fourth wave length back from the end of the guide. The directional coupler from the transmitting klystron to the reference cavity is actually small slots connecting the two wave guides where they cross. (Drawing by Victor Willard from a Lenkurt original.)

by an adjustment screw on the tube itself and also by varying the voltage on the repeller (R). In this circuit, the 6,000 megacycle microwave travels from the tube through the wave guide to the right. A directional coupler diverts some of this energy in the direction of the arrow up to the automatic frequency control reference cavity.

This cavity is a precisely machined unit which resonates exactly at the frequency that the klystron is supposed to maintain. The operation of this cavity might be compared to the cavity in an organ pipe or other wind operated musical instrument. The dimensions determine the wave length which will resonate within it.

In the microwave system shown, part of the energy also resonates in a second wave guide, which is tuned by means of a piston (ADJ). This is an adjustment normally made at the factory. Both the wave guide containing the piston and the one leading to the reference cavity are terminated at their opposite ends by rectifying crystals. If the power is the same in both wave guides, the direct current coming from each crystal will be the same. However, if the transmitting klystron drifts in frequency, the reference cavity will no longer be a perfect match for that frequency. When the frequency is correct, the reference cavity is equivalent to a high impedance termination, just as a coil-condenser combination presents a high impedance at its resonant frequency.

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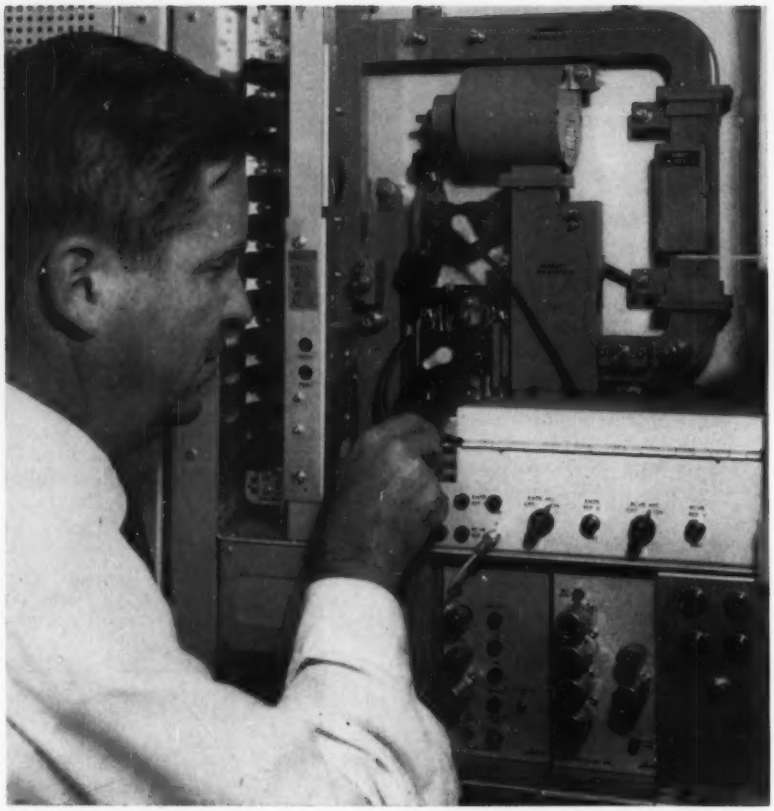
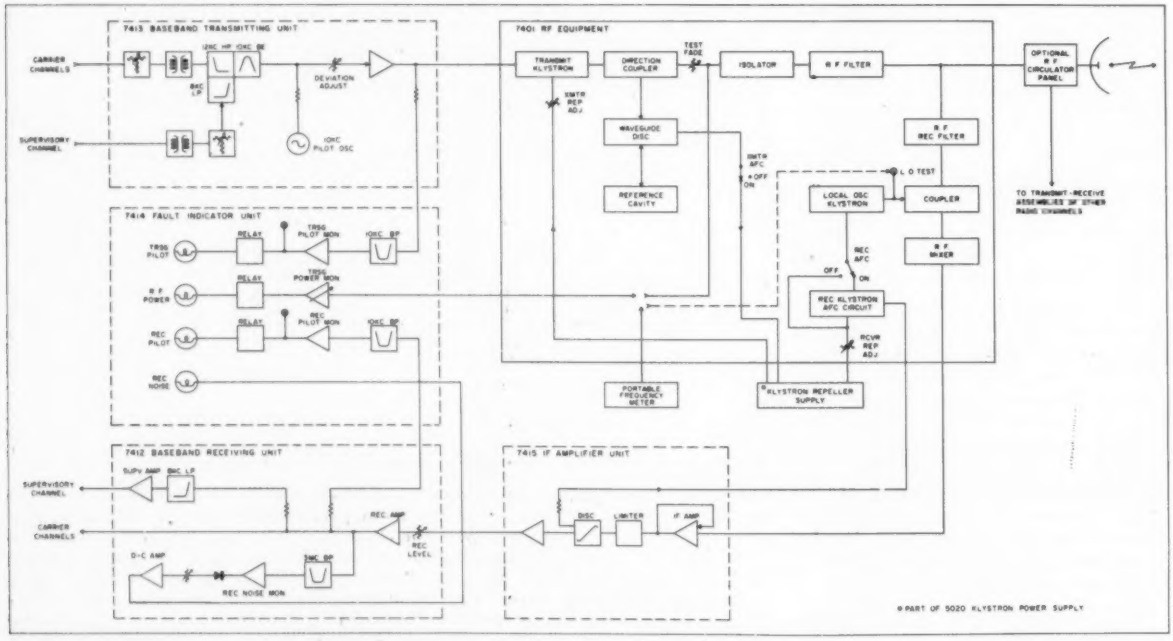
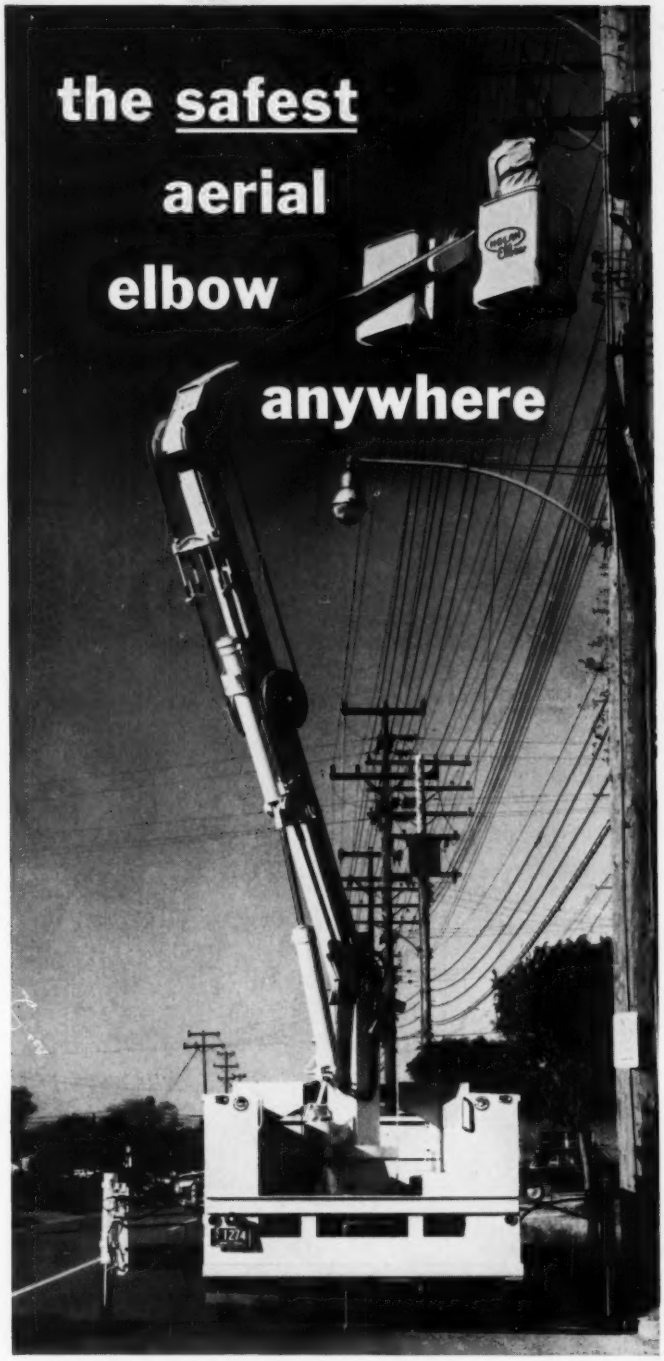


This is a microwave outfit. The man is adjusting the transmitting Klystron tube. The rectangular framework which surrounds the assembly and leads upward to the antenna, is the wave guide. The cylinder is the reference cavity which controls the frequency. The string of tubes in front of the man's face is the i.f. amplifier. The equipment at the bottom is the alarm, baseband receiving and transmitting units and the fault indicator. (Photo, courtesy Lenkurt Electric Co.)



A block diagram showing the principal parts of a microwave system for use with telephone circuits. (Lenkurt drawing)



Holan fiber glass section in upper arm

Holan Elbow has precise aircraft-type cable controls and strong, non-conductive fiber glass section in upper arm

With a Holan Elbow, it's easy to get to the problem—and safe when you get there.

The exclusive cable control system provides easy, precise spotting of the buckets. And a fiber glass section in the upper arm insulates workmen in the buckets from the ground. In a bucket-to-ground test, the non-conductive fiber glass section withstood 100,000 volts for one minute.

As for strength, in a separate test the fiber glass section required a 6,200-pound load at end before failing. This is a safety factor in excess of 7 as nominal capacity and weight of the buckets total 800 pounds.

Safety does come first but there are many operating features to talk about, too. Write for all the details.

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were ~~ARE~~ TRAPPED!

The ten-pulse dial, and the resultant decimal system basis for switch design, imposed limiting factors upon direct dial switching equipment—factors that became more and more limiting as the demands upon switching equipment became constantly heavier.

Crossbar switching introduced a new concept of basic design that went beyond the "ten finger" decimal concept.

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North By-Path Crossbar brings to the Independent Telephone Companies switching capabilities to meet the challenge of the future.

North Crossbar is the only switching equipment available to you that has been designed and engineered to completely satisfy all the requirements of nation-wide network telephony!

North Crossbar has the ability to route traffic independent of the numbering scheme or number of selector stages! North Crossbar can fully utilize the advantages of multi-frequency signalling on trunk lines! It is adaptable to key sending when such instruments become available! No other system can provide so much traffic handling capacity in so little space.

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To learn what North By-Path Crossbar is—and what it can do for you, write North Electric Company, Galion, Ohio for the "NX-1 Fact File"—today.

NORTH BY-PATH CROSSBAR IS ANOTHER ENGINEERING ACHIEVEMENT OF

THE DYNAMIC FORCE IN THE TELEPHONE INDUSTRY

NORTH ELECTRIC COMPANY

GALION, OHIO

THE Plant Man's Notebook

BY RAY BLAIN, TECHNICAL EDITORIAL DIRECTOR

THE seventh annual symposium on "Technical Progress in Communication Wires and Cables," jointly sponsored by industry and the U. S. Army Signal Research and Development Laboratory of Ft. Monmouth, N.J., was held at Asbury Park, N.J., during December, 1958. The registration was 944, and 314 firms were represented. The sessions were well attended and 24 papers were presented.

One paper of special interest to operating telephone people was titled: "Even-Count Polyethylene Insulated Cable" by F. W. Horn, of the Bell Telephone Laboratories. It stated that even-count cable is designed around the concept of 25-pair color groups which, in the larger cables, add up to 100-pair multiples. Cables of various sizes may be spliced together without losing the identity of any pair. Moreover, a simple record-keeping and assignment system is made possible. This scheme fulfills the Bell System's idea of everything a color scheme might be expected to accomplish.

The article also explains how the uneven-count cable came into being. When the cable industry was in its infancy, around the turn of the century, it was found that a certain number of pairs failed during the manufacturing and installation operations. Based on economic considerations, rather than repair such defects, extra pairs were included in a cable to allow for the probable defective pairs. From the beginning, the thinking was to have usable pairs in multiples of 100 and in order to realize this, an extra pair for each 100, or fraction thereof, provided the necessary safety factor. In the early days of cable manufacture it is doubtful if there were many cables having more than the round 100 count of working pairs.

As manufacturing techniques improved, there were more and more cases in which the spare pairs were usable. Good pairs beyond the even hundred were, of course, used and this developed into an uneven numbering system for both the cables and central office frames.

Another interesting paper presented by R. C. Graham of the Rome Cable Corp., and C. A. Neros, of the Diamond Alkali Co., was titled: "Flame Retardant Polyethylene For Wire and Cable." The paper explained that when polyethylene was introduced over 15 years ago, this material was the best electrical insulator yet developed for wire and cable. However, it looked, smelled and even burned like a candle.

Several investigators have since devised various ways and means to impart a certain degree of flame resistance to the material. Most of these approaches toward flame retardancy have usually resulted in a considerable sacrifice of other inherently desirable characteristics of polyethylene, either physically or electrically, or both.

Therefore, about 1949, the research divisions of Diamond Alkali Co., collaborating with Rome Cable Corp., undertook the development of flame-retardant polyethylene formulations that would maintain a maximum of original polyethylene characteristics, especially properties significant for insulation or jacket on wire and cable.

The original electrical characteristics of polyethylene should preferably not be affected beyond the ability of the material to serve as a satisfactory insulator in the power and audio-frequency spectrum. There should be a minimum reduction in original and aged physical properties, moisture resistance, weathering, low-temperature characteristics, and resistance to thermal or environmental stress cracking. An obvious objective was to avoid substantial increase of the inherent material and processing problems of wire coating. The paper indicated how and to what extent these objectives were achieved.

F. E. Leib, of Copperweld Steel Co., read a paper on: "Alumoweld, a New Bimetallic Wire for Electrical and Strength Application." This paper explained how the rapidly growing availability of aluminum has greatly increased its use in the design and construction of electrical transmission and distribution lines. This has led the forward thinking of the Copperweld Steel Co. towards developing a new bimetallic wire, Alumoweld, to combine the conductance and corrosion resistance of aluminum with the strength of steel. Alumoweld fills the requirements for strengthening aluminum-type conductors, retains the advantageous properties of aluminum and, in general, does the job for aluminum conductors that Copperweld does for copper conductors.

W. C. Murry, of IT&T Laboratories, and F. W. Wills, of the U. S. Army Signal Research and Development Laboratories, gave a paper on: "An Air-Layable Carrier Frequency Cable for Mobile Warfare."

Early in 1957, the Signal Corps and the IT&T Laboratories undertook the development of a cable assembly and the equipment necessary for payout of the assembly and associated equipment from rotary-wing aircraft. This paper not only describes the cable assembly, but also the techniques and equipments required for aerial payout.

"The Effects of Radiation on Silicone Rubber Wire and Cable Insulation" was an unusual paper presented by C. G. Currin, of the Dow Corning Corp. There was a second paper along the same line, "Nuclear Radiation, a New Environment," by C. J. Lyons and R. I. Leininger of Battelle Memorial Institute, Columbus, O. This paper explains that in recent years, a new environment, nuclear radiation, has been added to the more familiar ones such as temperature, moisture, and ultraviolet. The importance of this new environment is increasing as atomic energy is harnessed for power production and the propulsion of ships and aircraft. The effects of the different

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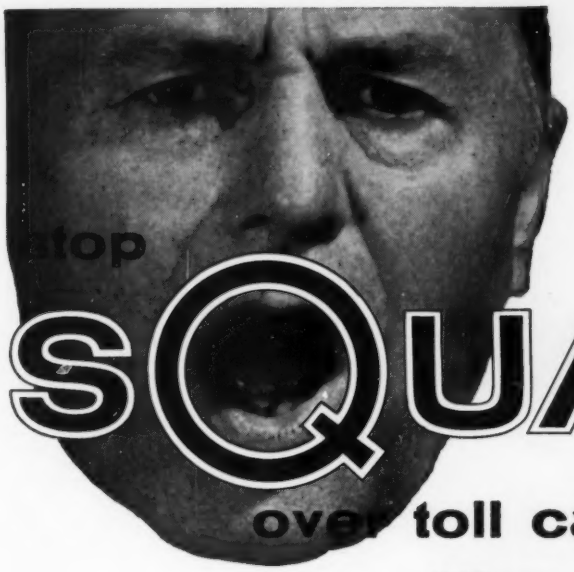

stop SQUAWKS over toll call bills . . .

The MICRO-TWIN

Microfilm Recorder-Reader Unit
(or separate recorders and readers)

- **Ends storage space problems**
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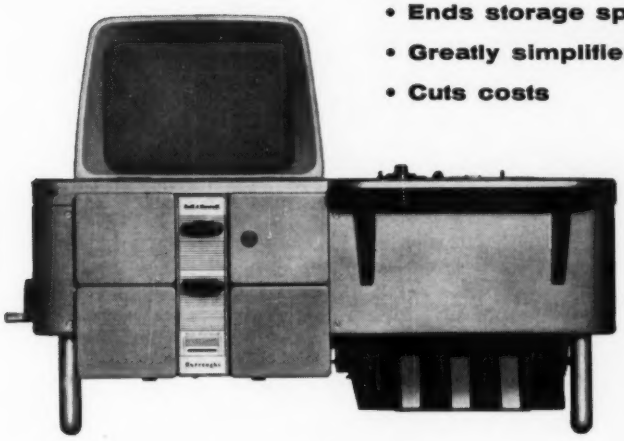

Customer complaints on tolls exact a toll of *you*, too . . . in money and in man-hours wasted digging up toll slips, explaining charges.

But with Micro-Twin you simply: (1) Microfilm all toll slips—front and back simultaneously if desired—plus a brief, non-descriptive "facer"; and (2) send originals to the customer with his bill. Then he *knows* exactly what he's paying for.

And *you* retain, on film, the identical record . . . which you can file in only *one percent* of the space your records occupied before. You save space and posting time, avoid customer ill will.

All office records, in fact, can be easily microfilmed, then filed in an equally tiny space. And projected at original size when needed.

You'll want complete information about the *only* truly up-to-date combination microfilm recorder *and* reader that offers such a *low-cost* answer to your every microfilming need. Yes, in a single unit that costs less than you might expect to pay for a recorder alone! Separate recorder, separate reader available at low cost, too. So get in touch with our nearby branch or write to Burroughs Corporation, Detroit 32, Michigan.

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Courts and Commissions

California W&T Granted 38% of Increase Asked

The California Public Utilities Commission on Jan. 20 granted the California Water & Telephone Co., Monrovia, a $750,000 rate raise, the company having requested $1,472,000 on Dec. 21, 1956 (TELEPHONY, Feb. 2, 1957).

California Independent Telephone Association's Jan. 27, 1959 newsletter summarized the commission order and this news item is based on that summary.

After applying for the rate increase in December 1956, California Water & Telephone Co. amended its application in August 1957, and March and June 1958. The company originally asked a $1,472,000 increase in rates. In the final amendment, increased annual revenues of $1,970,000 were requested—and 38 per cent of this amount was authorized.

The commission limited its consideration of estimated operating results to those applicable to exchange and intracompany toll operations, explaining that the company should not expect to offset any deficiencies in intrastate toll earnings by increases in local exchange rates, but should seek revision of its settlement contracts.

The commission's decision also stated, in relation to the multi-message unit portion of the company's operations: "Looking to the future we will not burden exchange rates with any deficiency which results from (the company's) entering into a settlement contract that has not been specifically approved by the commission."

The company and the commission staff introduced exhibits showing estimated results of 1958 operations separated among interchanged message toll, multi-message unit, intracompany toll and exchange operations.

In its decision, the commission adopted certain estimates of 1958 operations at presently effective rates and on the basis of these estimates developed a rate of return of 5.13 per cent on a base of $30,796,000.

The commission found that a rate of return of 6.25 per cent on this rate base is fair and reasonable and that a gross revenue increase of $750,000 annually is necessary to produce such a rate of return.

The company had estimated its rate base as $32,144,861 and set its rate of return as 4.67 per cent at its old rates.

In computing the commission-adopted income taxes at both present and authorized rates, the commission considered the use of accelerated depreciation by the company for the years 1954 through 1956 and the resulting reserve accrued for deferred taxes. The decision states in this respect:

"For the purposes of this decision only, pending final decision by this commission on the treatment to be accorded accelerated depreciation for rate-making purposes, the tax expense for rate-making purposes herein will be determined after crediting to the federal income tax account interest calculated on the reserve for income taxes at the rate of return on applicant's rate base herein adopted."

The decision also requires the company to advise the commission as to its election regarding the use or non-use of accelerated depreciation for the 1958 and 1959 tax years, within 30 days after the effective date of the decision and yearly thereafter until a final decision of the commission in Case No. 6148 (investigation of accelerated depreciation practices) is reached.

During the course of the hearings, the company introduced testimony indicating that it would experience an annual attrition in rate of return of from 0.5 per cent to 0.75 per cent. The staff's report on the results of operation of the company indicated an attrition in return of 0.22 per cent to 0.39 per cent annually.

In its decision the commission did not make any allowance for attrition in rate of return and stated:

"Therefore, in this decision, we have allowed for the major items that cause attrition and do not find any reason for granting any extra allowance in rate of return."

The commission granted increases in basic exchange rates, service connection and move and change charges and rates for various special telephone services.

The decision ordered the company to prepare and submit to the commission, within six months of Jan. 20, studies showing the cost and revenue effect of providing one-party business and private branch exchange trunk message rate service in lieu of flat rate service and two-party residence message rate service in lieu of four-party residence flat rate service in all its exchanges within the Los Angeles extended area.

The decision commented upon the service being furnished by the company as follows:

"The commission is concerned over the comparatively large number of service complaints received during the course of the hearings and implications of generally unsatisfactory service based on the large number of subscribers signing petitions.

"The company's stated position and philosophy is that a utility that has inadequate earnings must necessarily render inadequate and inefficient service.

"The commission disagrees with applicant's position and philosophy.

"The company's obligation as a public utility operating under the Public Utilities Code of the State of California is first to supply adequate and sufficient service.

"Inadequate past earnings and inadequate financing are not an excuse.

"Accordingly, we have held increases in residence rates to a very minimum, with no increases to the residence four-party and suburban grades."

SW States Tel. Co. Granted Raise for Three Exchanges

The following rate increases have been granted in Texas to The Southwestern States Telephone Co., and went into effect in January, 1959:

Granger, dial, 273 stations, effective Jan. 26.

	Old	*New*
One-party business	$8.50	$8.75
Two-party business	7.00	7.25
One-party residence	5.50	5.75
Two-party residence	4.25	4.50
Four-party residence	3.25	3.50
Rural business (dial)	6.50	7.00
Rural residence (dial)	4.50	5.25

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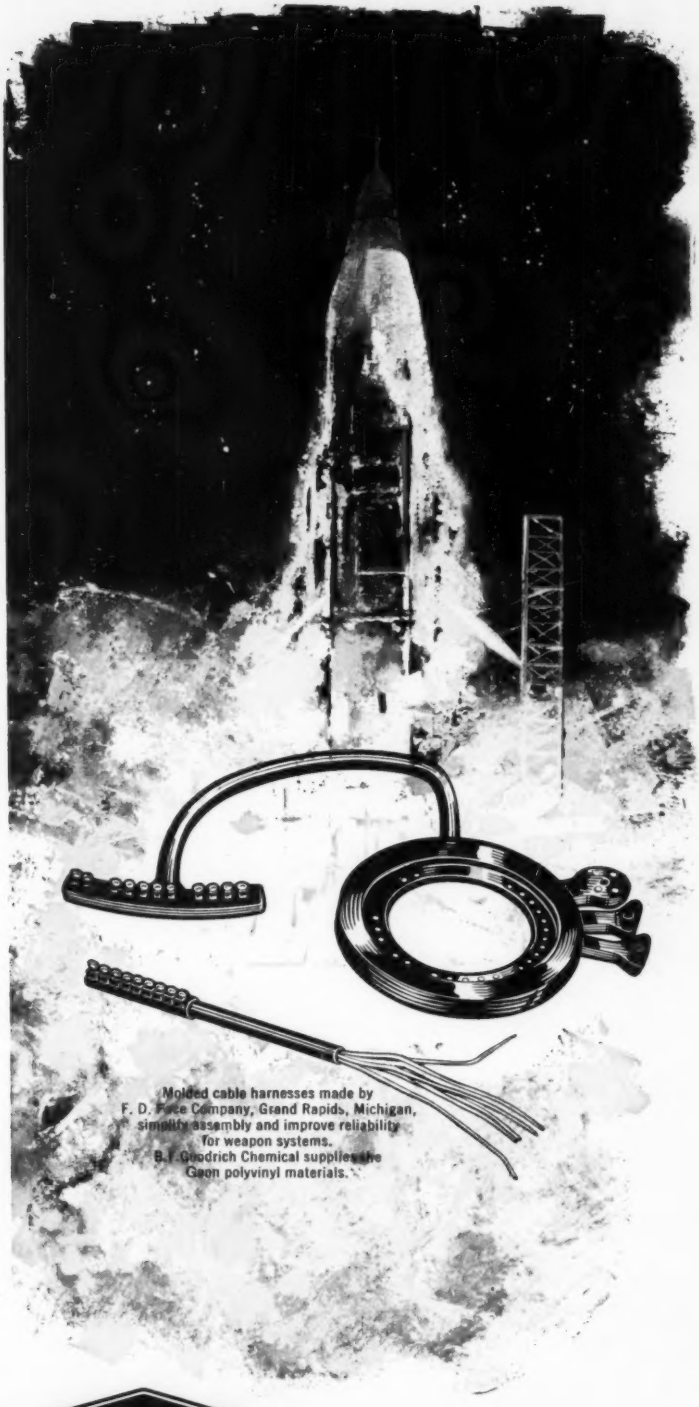
Another new development using

B.F.Goodrich Chemical *raw materials*



Molded cable harnesses made by F. D. Face Company, Grand Rapids, Michigan, simplify assembly and improve reliability for weapon systems. B.F.Goodrich Chemical supplies the Geon polyvinyl materials.

Molded cable made with Geon guards weapon's sensitive "nervous system"

Firing modern weapons calls for extreme reliability—especially in the maze of interconnecting electrical components. To meet the needs of these complex installations, a new method of molding wiring harness and cable with Geon polyvinyl material has been developed that promises wide application on tough industrial applications, too.

Geon has many properties which make it ideal for moldings like this. Geon resists attack by most chemicals, heat, light and fungus. Geon also makes possible the right degree of flexibility and physical strength, which means that part of the load is taken off conductors and soldered joints. Since strain cables can be molded in, space consuming clamps can be eliminated. In addition, contacts, terminals and connectors can be molded to exact position to eliminate misconnections.

Geon also permits molding in any color to simplify coding. It's another example of the many ways Geon can contribute to new products or applications. Write Dept. AV-1, B.F.Goodrich Chemical Company, 3135 Euclid Avenue, Cleveland 15, Ohio. Cable address: Goodchemco. In Canada: Kitchener, Ontario.

B.F.Goodrich Chemical Company
a division of The B.F.Goodrich Company

B.F.Goodrich

GEON polyvinyl materials • HYCAR rubber and latex
GOOD-RITE chemicals and plasticizers • HARMON colors

Bridgeport, dial, 1,034 stations, effective Jan. 6

One-party business	$7.00	$8.00
Two-party business	5.00	6.00
One-party residence	4.00	4.75
Two-party residence	3.00	3.75
Four-party residence	2.50	3.00
Rural business	6.25	7.50
Rural residence	4.25	5.25

Thorndale, dial, 359 stations, effective Jan. 26.

One-party business	$7.50	$8.40
Two-party business	6.00	6.70
One-party residence	4.50	5.05
Two-party residence	3.75	4.20
Four-party residence	3.00	3.35
Rural business	6.50	7.00
Rural residence	4.25	5.25

Cut 25 Per Cent From Ohio Company's Rate Request

The Ohio Public Utilities Commission on Jan. 3 granted the Elyria Telephone Co. increased rates 25 per cent less than those sought (TELEPHONY, Apr. 5).

The company had requested $558,706 and the commission allowed additional gross revenues of $428,855. The commission determined the company's rate base to be $8,311,469, about 2 million dollars less than the valuation submitted by the company.

Rates approved by the commission are as follows:

One-party residence	$ 5.90
Five-party residence	4.50
Ten-party residence	4.10
One-party business	11.50
Five-party business	7.65
Ten-party business	7.45

Paystation calls were also increased from five to 10 cents. The company serves 21,000 subscribers.

OK Two Raises, Three Property Sales in Kansas

Two Independents were granted rate increases on Jan. 21 by the Kansas Corporation Commission. They are the S&T Telephone Cooperative, Brewster, which serves 800 subscribers and the Prairie View Telephone Co. which has 153 subscribers. The Prairie View company was granted a $462 annual increase.

Also in Kansas, three companies were authorized to sell their property to the American Communication Co., Inc., Belleville. They are the Ionia Telephone Co., the Morganville Telephone Exchange and the Webber Mutual Telephone Co.

Seek Raise in Illinois

The Illinois Commerce Commission on Feb. 3 was to have heard the application of the Montrose Mutual Telephone Co., Dietrich, for rate increases at its Dieterich, Gila, Montrose and Wheeler exchanges.

An Unfair and Discriminatory Tax

"A. W. Webber, manager of the Orlando district office of the Southern Bell Telephone & Telegraph Co., has run across a new and novel way to emphasize the magnitude of the federal excise tax on telephone service to Southern Bell's 1,146,140 Florida subscribers.

"If the federal excise tax on telephone service had not been in effect in 1958, he points out, Florida telephone subscribers could have spent some 11.4 million dollars more for Christmas. How much is 11.4 million dollars? In terms of some holiday customer, it could have purchased 2,280,000 Christmas trees at $5.00 each, or 1,140,000 Christmas turkeys at $10 each.

"The facts behind the federal excise tax reveal that tax collections from telephone users were originally imposed during World War I to raise government revenues and to free circuits for war-essential telephone calls. This tax was repealed in 1924.

"During the depression in 1932, the excise tax was imposed again on telephone service to raise government revenues. Ten years later, during World War II, the rate of tax was increased and the scope broadened. Four years ago, this tax was reduced to the present 10 per cent level.

"And this war-time emergency tax on an important public utility still exists today, 12 years after World War II. It classifies telephone service with such luxury items as furs, jewelry and cosmetics. There is no such federal tax on gas, water or electricity.

"As a result, telephone subscribers are required to pay an unfair and discriminatory tax. The telephone company merely collects this tax and remits it to the federal government. Repeal of this tax would immediately reduce the subscriber's bill by the full amount of the levy. Every telephone customer would benefit by such repeal."—*Orlando (Fla.) Evening Star.*

Seek Party Line Emergency Law in South Dakota

A bill making it illegal to fail to yield a party line in an emergency was introduced in the South Dakota legislature recently by Rep. Ed Herbst (D., Mt. Vernon). A similar bill was vetoed at the last legislative session by former Governor Joe Foss (TELEPHONY, Mar. 23, 1957).

The measure would provide penalties of up to six months in jail and a $500 fine. The penalty would also apply to people who ask for the use of a party line under the guise of an emergency when no emergency exists.

SW Bell Allowed Increased Rates at Texas Exchange

Southwestern Bell Telephone Co. was authorized by the Madisonville (Tex.) City Council to increase rates at the Madisonville exchange. Past, proposed and approved rates are as follows:

	Past	*Proposed*	*Approved*
Business	$9.00	$10.50	$9.50
One-party residence	5.00	5.50	5.25
Two-party residence	4.00	4.25	4.25

Authorize Sale in Kentucky

The Irvine-Ravenna Telephone Co., Irvine, recently was granted permission by the Kentucky Public Service Commission to sell its property to the Kentucky Telephone Co., Maysville, according to D. B. Corman, president of the Irvine company.

Qualify OK on Elimination Of 4-Party Service in Ill.

The Illinois Commerce Commission has approved the tariff of Illinois Bell Telephone Co. which provides that no additional four-party service shall be furnished after Feb. 9, 1959 and that the provision of all four-party service shall be terminated by July 1, 1960 (TELEPHONY, Jan. 24).

The commission pointed out, however, that it has power to alter the absolute termination of the service to any community if hardship would be caused by such termination.

New York Independent Gets OK to Sell Stock

The New York Public Service Commission on Jan. 30, authorized Chautauqua & Erie Telephone Corp., Westfield, to sell new securities totaling $550,000. Included will be $400,000 in 5¼ per cent first-mortgage bonds, to be sold to Berkshire Life Insurance Co., and 3,000 shares of $50 par value 5 per cent preferred stock, sale of the latter to produce not less than $150,000.

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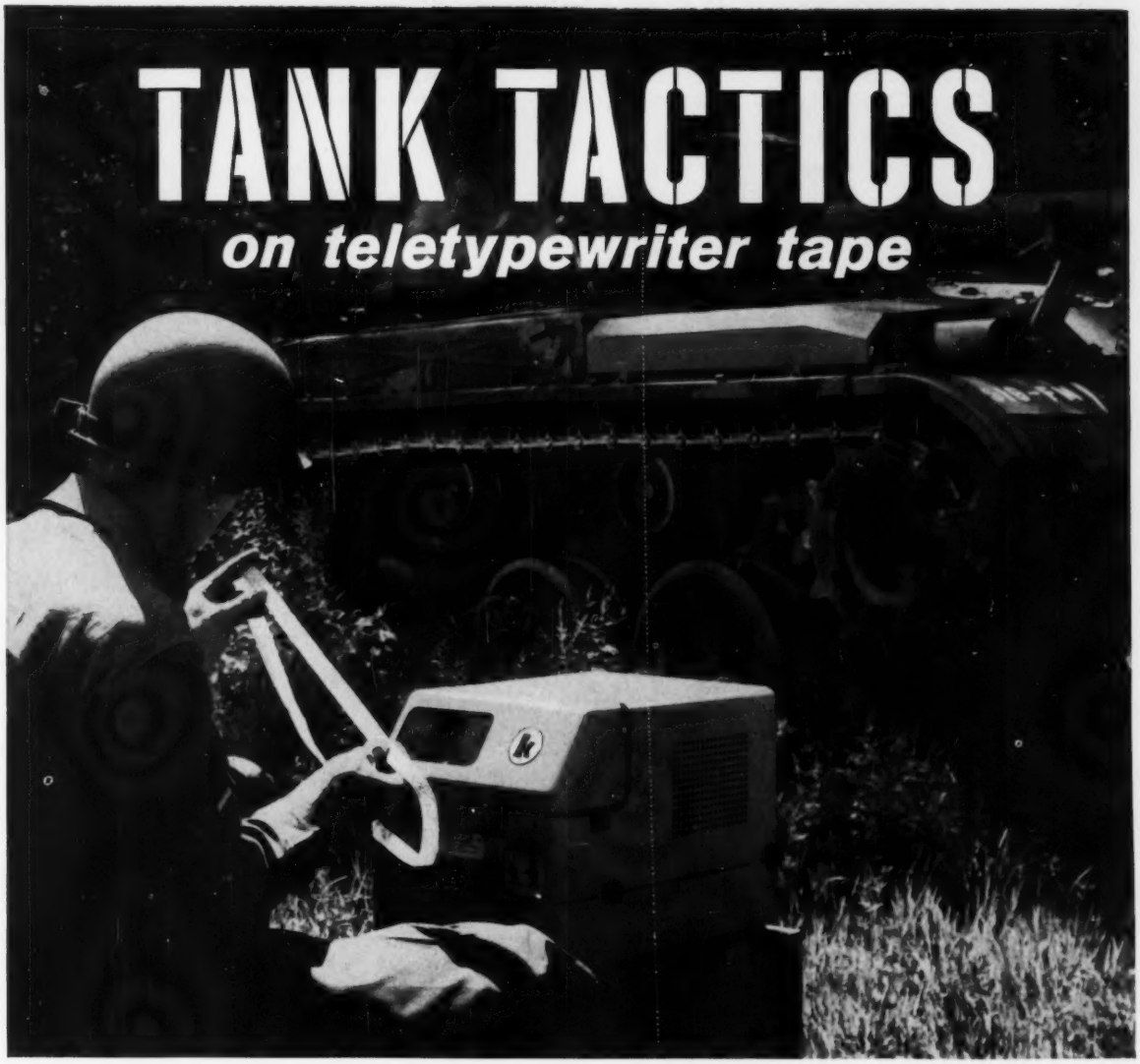


Capable of reception at speeds of 750 words a minute, new Kleinschmidt unit is world's fastest message printer and code puncher

A major breakthrough in mechanical printing! Developed in cooperation with the U.S. Army Signal Corps, this new super-speed teletypewriter is ten times faster than "standard" equipment, five times faster than normal conversation. In future commercial use it could speed operations such as the transmission of telegrams, stock market quotations, and weather reports. It has important applications in the field of integrated data processing. In recognition of its quality, Kleinschmidt equipment is manufactured for the U.S. Army under the Reduced Inspection Quality Assurance Plan.

KLEINSCHMIDT

DIVISION OF SMITH-CORONA MARCHANT INC., DEERFIELD, ILLINOIS

Pioneer in teleprinted communications systems and equipment since 1911

Modern Telephones . . . designed for

TYPE 86 KEY TELEPHONE

Saves time and steps around the office!

Key telephone service gives your subscriber access to all office lines—*at one desk!* No more racing around the office to answer phones. Instead, he lifts the handset of his key telephone, presses a button and the call is connected. He holds outside lines while using another line, too. Your subscriber saves time and steps—gets more work done!

The Type 86 Key Telephone gives your subscriber a complete communications package. It's used with the Automatic Electric 10-A1 Key System—or W.E. 1A and 1A1 Systems.

Type 86 Telephones accent any office decor. They're available in 10 attractive colors. Use Type 86 Telephones to boost your revenue. Write for full ordering information.

AUTOMATIC ELECTRIC

TYPE 85 TELEPHONE

Provides two-line pickup and extension exclusion!

Three different models of the Type 85 Telephone fill a special need for many subscribers in your area. Doctors, attorneys, insurance offices, real estate agencies and many others are all potential customers. They'll want the convenience, efficiency and privacy that these telephones provide.

Type 85-A gives your subscriber 2-line pickup and signaling. The user turns a button to switch over to line 2. By *pressing* the same button, he signals his secretary.

Type 85-B gives your subscriber extension exclusion. It is equipped with two buttons. To cut off all extensions, the user presses the exclusion button. To bring in an extension party, he simply presses the other button.

Type 85-C combines two-line pickup, signaling and extension exclusion.

For more information on Type 85 Telephones write for Circular 1909.

AUTOMATIC ELECTRIC

office convenience by Automatic Electric

TYPE 88-T SPEAKERPHONE

World's most compact loud-speaking phone!

Automatic's new Type 88-T Speakerphone is the most compact loud-speaking phone you can buy. That's because it's transistorized! There is no control cabinet. It's the *same size and shape* as our famous Type 80—no extra bulk.

With the Type 88-T, no special power supply is required. You install it like a regular phone...without time-consuming delays.

Speakerphone gives your business subscribers *no hands* telephoning. It's ideal for conferences. Install it in the home, too. The lady of the house appreciates its convenience when she has her hands full.

You can get Speakerphone in a choice of 10 eye-catching colors. For the full story on the Speakerphone, write for Circular 1857-C.

AUTOMATIC ELECTRIC

TYPE 83 COMPACT TELEPHONE

Mounts on Any Vertical Surface!

Automatic's Type 83 Compact Telephone mounts on *any* vertical surface—wall, column, side of desk, etc. Saves valuable working space on desk and table tops. Requires only 7" x 3¼" for mounting.

Type 83 Telephones give your subscribers famous Type 80 transmission. And, you don't have to worry about stocking special parts—this phone uses standard components! There's a choice of 10 beautiful colors, too: Gardenia White, Camellia Pink, Forget-Me-Not Blue, Sand Beige, Garnet Red, Jade Green, Classic Ivory, Dawn Grey, Sunlight Yellow and Turquoise.

For complete information on all AE telephones, ask for Circular 4055-H. Write: *Automatic Electric Sales Corporation, Northlake, Illinois. In Canada, Automatic Electric Sales (Canada) Ltd., Toronto 16.*

AUTOMATIC ELECTRIC

Subsidiary of **GENERAL TELEPHONE**

Proceeds of the securities sales are to be used to retire indebtedness incurred for plant expansion and to finance certain future construction work.

The company serves about 6,300 main stations.

General to Survey Modern Residence Telephone Needs

General Telephone System has begun a regional testing project aimed at learning what is the best telephone service that the modern home requires, and how to deliver such service most efficiently, according to Donald C. Power, General's president.

Selected homes in various parts of the country are being equipped with complete telephone service, including intercommunicating facilities inside the home as well as ample outside connections, and even a "front door" communication device so that callers at the door may be spoken to from any telephone in the house.

The test campaign is being conducted under the supervision of R. Parker Sullivan, vice president—marketing and merchandising, of General Telephone System. It will continue for a period of six months, with results checked against the previous six months telephone history of the test homes. A careful check on all aspects of telephone usage will be maintained during that time so that complete and accurate results can be obtained.

Each home taking part in the test will have at least four telephones within the house. Basically, one is in the kitchen, one in the master bedroom, one in the workshop, and the fourth in living room, den, main hall, or other convenient location.

Each telephone will be interconnected so that anyone can talk from one telephone to another; any telephone can take outside calls or originate outside calls; calls can be transferred from any telephone to other telephones in the house; any call can be "held" on a line until the other person can get to the telephone, and all telephones can talk directly to a speaker unit at the front door, so that visitors, salesmen or delivery people can be spoken to without the necessity of going to the door.

In the test study will be homes of conventional type, ranch homes, split-levels, large and small. Families of various sizes will also be covered.

General believes that by careful study of the calls made during this test period, and comparing them with calls made in the previous six months, the survey will be able to point in the direction of the best approach to residence telephone requirements.

Taking part in the first organizational meeting of the Nevada Telephone Association in Las Vegas are (seated, left to right): Paul R. Bond, director; Mike Burns, president; Mrs. Helen Chauncey; Mrs. Evelyn Gerow, secretary-treasurer; Mrs. Hershel Trumbo; and Allye Lawson, director. Standing, left to right, are Art Force, Hershel Trumbo, Harold Rogers, W. Mack Lyon, Willard Wade, James Pulsipher, Gilbert O. Thomas, William Urga, Harold Bright, Walter Geary, Arthur Taylor, John Barrows, Paul Garwood, and John Christian Jr., vice president.

Form Nevada Association; Elect Burns President

Executives from 11 of the operating companies in the state of Nevada recently formed the Nevada Telephone Association to "provide mutual assistance, benefits and exchange of ideas and information pertinent to the industry."

Officers of the new association are Mike Burns of Mesquite, president; John Christian Jr. of Pioche, vice president; and Mrs. Evelyn Gerow of Yerington, secretary-treasurer.

Directors are Paul R. Bond of Reno and Allye Lawson of Las Vegas.

Representatives from the following companies attended the meeting which was held in Las Vegas:

California Interstate Telephone Co., California-Pacific Utilities Co., Churchill County Telephone & Telegraph System, Henderson Telephone Co., Lincoln County Telephone System, Inc., Lund & Preston Telephone Co., Moapa Valley Telephone Co., Rio Virgin Telephone Co., Southern Nevada Telephone Co., Yerington Electric Co., Inc., and Bell Telephone Co. of Nevada.

OK Raise, Rates in Neb.

Chrisp's Telephone Co., Paxton, was recently authorized by the Nebraska Railway Commission to raise its rates following conversion to automatic operation (TELEPHONY, Nov. 29). The company was also allowed to issue notes and a mortgage.

Ask To Incorporate in Ark.

The Madison Telephone Co., Huntsville, has asked the Arkansas Public Service Commission for permission to incorporate, it was reported on Jan. 20. J. Curtis Shum, company head, said incorporation was planned in order to obtain a REA loan.

United Utilities Announces Executive Changes

R. Crosby Kemper, chairman of the board of directors of United Utilities, Inc., Kansas City, Mo., on Jan. 21 announced the following management changes. New directors elected to the board were C. A. Scupin, Loren M. Berry and R. F. Lucier. According to Mr. Kemper the vacancies on the board were created by the recent death of Gustav Hirsch, and the resignations of Alden L. Hart and A. Z. Patterson.

C. A. SCUPIN

Mr. Kemper also announced that Mr.

BEFORE YOU BUY "Adequate Intercept"

FOR THE INTERIM PERIOD

INVESTIGATE...

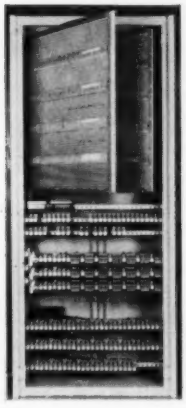
UNIVERSAL COMPUTER INTERCEPT

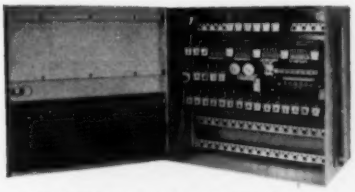
100% Intercept is

The Ultimate Goal of the Direct Distant Dialing Program

Universal 100% Toll Computer Intercept is the *only* intercept that can be installed in a toll center to serve outlying offices. May also be installed in end offices to serve subscribers.

Other ***UNIVERSAL*** Equipment:
Code-to-Selective RINGING CONVERTER
DIGIT ABSORBER
TRUNK DIGIT REGISTER





Cabinet 19" x 17" x 8" for rack or wall mounting, 60 lines TPL illustrated.

Cabinet 84" x 36" x 12", capacity 40,000 stations, TPL or TPS or any combination of both.

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PLEASE WRITE DIRECT TO
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OR CONSULT YOUR DISTRIBUTOR
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TELEPHONE DIVISION

UNIVERSAL
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ON ORDERS DIRECT TO UNIVERSAL, BILLING WILL BE THRU YOUR PREFERRED DISTRIBUTOR.

R. F. LUCIER

Scupin, who has been acting president of the company, was elected president. R. F. Lucier was elected vice president in charge of operations. O. D. Small was elected treasurer. D. Adams was elected assistant treasurer. Messrs. Hart and Patterson became members of the newly created advisory board.

Mr. Scupin has been associated in executive positions in the United Utilities system for the past 38 years.

For the past 24 years Mr. Lucier has been president and general manager of the company's operating telephone subsidiaries in Indiana and Ohio.

L. M. BERRY

Mr. Berry, who has widespread interests in the Independent telephone industry, is the owner of L. M. Berry & Co., of Dayton, O., telephone directory advertising company.

Difference is Creativity

"A learned man is a tank; a wise man is a spring."—W. R. ALGER.

Job Pride Most Important, 47-Year Ill. Veteran Says

Job pride is the most important thing a working man can have, Lee Key, Bloomington district central office foreman for General Telephone Co. of Illinois, said as he retired recently after 47 years in the telephone business. He added: "I've always said that the man who has job pride knows his job well."

Mr. Key advised new men in the telephone industry to "learn all they can about the job they're in and the whole business; and study their spec books. After all, these books were written by men who know what they're talking about."

Starting in July 1913 as a cable splicer's helper in Bloomington, Mr. Key during World War I taught telephony at the Fort Leavenworth, Kan. War College. He also helped form a new school at Camp Custer, Battle Creek, Mich.

Mr. Key recalls that upon his return from service there were three companies in the telephone business in Bloomington—the Central Union (Bell), the Kinloch Telephone Co. and AT&T. In 1919 the Kinloch company took over Central Union, and in the process, only gained a net of 36 stations because of the duplication of service that existed.

When asked what experience stands out in his memory, Mr. Key said:

"I think the work I did during the Portsmouth flood of 1937 will stand out as one of the most unforgettable experiences during my telephone life. I was working as a Cableman at the time.

"The first day we were checking cable underground and by noon I was soaked to the skin. No, the manholes weren't flooded but when we cut into the cables down there, we always got a faceful of water, unless we ducked first.

"When we got there the only communications in the town was a 150-line PBX in the Coca-Cola plant with lines strung across the tops of the buildings. It took about six weeks to get back into operation."

In retrospect Mr. Key said: "I've enjoyed my work in this business. The years have been pretty good to me. You get a lot more from your work than the figures on your paycheck and I wouldn't have traded it for the world."

New Conventions Annual Furnishes Data to 1964

Executives and technical administrators can find the answers to their questions about conventions and meetings through 1964 in the new annual issue of *Engineering and Technical Conventions.*

This publication, prepared by Deutsch and Shea, Inc., technical manpower consultants, lists the national, regional, and state technical meetings and conventions of more than a hundred engineering and scientific societies and related organizations.

Each entry includes the dates, location, headquarters, title of the meeting and sponsoring organization(s). An appendix lists complete addresses for all organizations whose meetings are included. Handy indexes, another feature, make it easy to locate meetings by technical subject, by location, and by sponsoring organization.

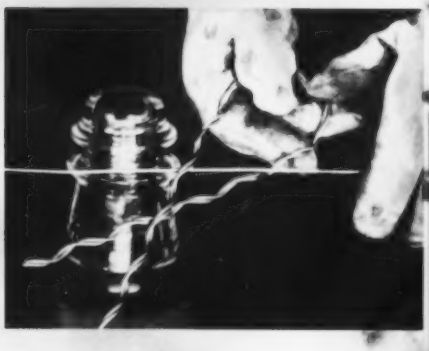
Engineering and Technical Conventions is available from Industrial Relations News, 230 West 41st St., New York 36, N.Y. at $4.00 per copy. The price includes a fall supplement.

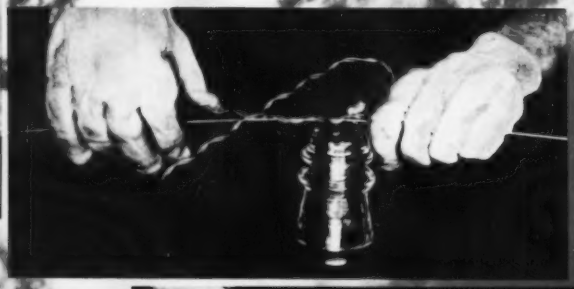
W. M. Driggs (right), General of Illinois operating vice president, presenting 45-year pin to Lee Key of Bloomington. District Manager R. W. Mathews is at left.

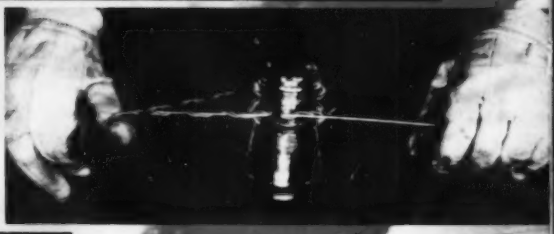
because this communications tie is Preformed
. . . it refuses to do the wrong thing !
. . . won't let the conductor rub
This tie holds the conductor away from the insulator, preventing fatigue damage and abrasion.
. . . won't be controlled by human error
You get uniform application every time with this PREFORMED tie.
You can look up to Preformed™
TURN THE PAGE

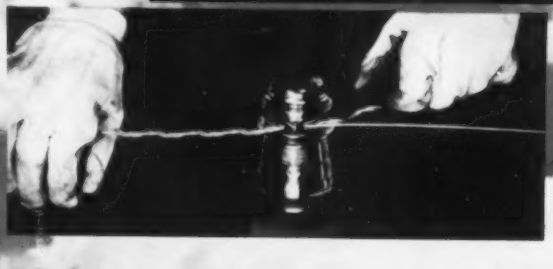
Preformed COMMUNICATIONS TIE

...means fast, easy, tool-free installation









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PREFORMED communications products are distributed by all leading National Telephone Suppliers

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Composite Co-axial and Audio Long Distance Telephone Cable

60 Channel 14 Pair Carrier Telephone Cable

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Telephone Cables for every type of LONG DISTANCE SYSTEM designed, manufactured and installed by

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Branches and Agents throughout the World

BI Callender's

BRITISH INSULATED CALLENDER'S CABLES LIMITED 21 Bloomsbury Street, London, W.C.1

Pennsylvania REA telephone borrowers recently held a two-day conference in Harrisburg, to which New York and New Jersey borrowers were invited. The conferees are shown at a luncheon held during the meeting. Approximately 80 attended, including representatives of the Pennsylvania Public Utility Commission and Bell Telephone Co. of Pennsylvania. The conferees elected, as chairman of the fall 1959 meeting, Ralph M. Hyle, president of The Lycoming Telephone Co., Pine Grove, Pa.

New York Independent Appoints Chief Engineer

Barton L. Gifford has been appointed chief engineer of the Chenango & Unadilla Telephone Corp., Norwich, N. Y., effective Jan. 1, succeeding George F. Shoemaker, whose resignation was

B. L. GIFFORD

accepted as of that date. Mr. Gifford will be in charge of the company's engineering and plant activities.

Mr. Gifford started his telephone career in 1916, when, at the age of 14 while attending school, he tended the switchboard of the telephone company in his home town of Madison, N. Y., from 6 to 9 p.m.

His employment with the C&U company began in 1927 as combination man at Madison. From that position he advanced through the plant department to wire chief at Norwich. He transferred to the engineering department in 1947 and has since served as equipment engineer and assistant chief engineer.

Carolina T&T Elects Jones Vice President

The executive committee of the Carolina Telephone & Telegraph Co. meeting at Tarboro on Dec. 30, elected C. R. Jones vice president and chief engineer, effective as of that date.

Other vice presidents of the company are J. K. Avent for operations and J. F. Havens for personnel and public relations.

The new vice president is a native of eastern North Carolina, having spent his youth in Pink Hill. He graduated from the University of North Carolina in 1928 with a degree in electrical engineering.

His telephone career began in 1928 when he became a junior engineer for Southern Bell Telephone & Telegraph Co. in Atlanta. In 1929 he was transferred to Nashville as plant engineer. In 1935 he became transmission engineer and later was made transmission maintenance supervisor of the Tennessee division. In 1939 he was sent back to Atlanta as a supervisor in the general plant department. During 1941

C. R. JONES

he became transmission maintenance supervisor in the general plant department at Atlanta where he remained until he joined Carolina T&T.

Mr. Jones went to the Carolina com-

NEW

JOINS 26% FASTER

Because there are no separate couplings to assemble on the job, Orangeburg's new CA Conduit lays faster—costs less to install. In addition, there are no coupling cartons to handle, transport or store.

Orangeburg's new CA Conduit comes, at *no extra cost*, with a factory-attached coupling at one end and a standard 2° male taper at the other end. To join—CA's long, lightweight lengths are placed end to end—hammered home in a simple, one-step operation. Actual installations *prove* Orangeburg's new CA Conduit joins up to 26% faster!

What's more, because the attached coupling is *flush* with the outside diameter of the conduit, new CA Conduit is easy to handle and store in neat, even stacks. And with the new flush coupling there's no need to "stagger" conduit joints in the trench. That means less cutting and tooling time.

New CA Conduit—like the millions of feet of Orangeburg Fibre Conduit in use since 1893—has self-sealing joints and impermeable walls that make it absolutely watertight. Its smooth 100% fibre raceway adds years to cable life.

Specify new CA Conduit on your next job. This addition to Orangeburg's line is available in 2", 3", 4", 4½" and 5" sizes. Orangeburg's Standard and Nocrete Conduit with separate sleeve couplings are available as always. Orangeburg Manufacturing Co., Orangeburg, N. Y. and Newark, Calif.

ORANGEBURG MANUFACTURING CO.
A Division of The Flintkote Company, Manufacturers of America's Broadest Line of Building Products

Orangeburg Fibre Conduit is distributed by Graybar Electric Co. and General Electric Supply Co. with branches and stocks in principal cities.

pany as transmission and protection engineer in 1944 and was made assistant chief engineer in 1946. He became chief engineer in November, 1951.

Name Walker New General Of NW Personnel Head

J. W. Walker Jr., personnel development supervisor at General Telephone Co. of California, has been promoted to director of personnel for the General Telephone Co. of the Northwest effective Jan. 15, it was announced by Gen-

J. W. WALKER JR.

eral of the Northwest's president, A. J. Barran. Mr. Walker is replacing G. M. Meyer who was promoted to a position with General Telephone Co. of California, as of Jan. 15.

Mr. Walker was employed by the California company in 1951 and has had varied plant, engineering and personnel department experience. He is a native of California. He received his B. A. degree in mathematics from Kansas University. He served in the military services with the U. S. Navy.

Mr. Meyer was employed in Spokane in 1954 and has held the director of personnel post since April, 1958. He has a B. A. degree in business administration and a master's degree in industrial relations and economics from Columbia University's Graduate School.

Paul H. Henson Named Vice President of United

An addition to the executive staff of United Utilities, Inc. was announced on Feb. 1 by President C. A. Scupin (See page 38 for United Utilities executive changes).

Effective Feb. 16, Paul H. Henson will become vice president of United Utilities in Kansas City, Mo. In this capacity, Mr. Henson will serve with

P. H. HENSON

and report to Ralph F. Lucier, vice president in charge of operations. In announcing this addition, Mr. Scupin indicated that Mr. Henson's initial responsibilities would include the development of long-range plans for future operations of United System properties.

Mr. Henson has been chief engineer of the Lincoln (Neb.) Telephone & Telegraph Co. since 1955. He joined the Lincoln company in 1942 as a warehouseman at Lincoln and later was an advanced clerk in the traffic department. He became equipment engineer in the engineering department in 1948 and transmission and protection engineer in 1949 and was appointed district manager of the company's eastern district in 1954.

A graduate of the University of Nebraska, Mr. Henson holds a master of science degree in electrical engineering and is a member of the National Society of Professional Engineers, Institute of Radio Engineering and honorary engineering and science societies of Sigma Xi, Eta Kappa Nu and Sigma Tau. He is secretary-treasurer of the Nebraska section of the American Institute of Electrical Engineering.

Active in the telephone industry, he is chairman of the Engineering Committee of the United States Independent Telephone Association and past chairman of the USITA Engineering Education Committee and a member of the USITA Military Liaison Committee. He also is a member of the national communications switching committee.

Minnesota Foreman Receives Bell System's Vail Award

James W. Springer of Minneapolis, a telephone service foreman, has received three awards for saving an unidentified boy from drowning in a lake last June.

He was given the Bell System's Vail bronze award, $250; a Northwestern Bell Telephone Co. citation, and a Red Cross certificate of merit.

Friends Never Alone

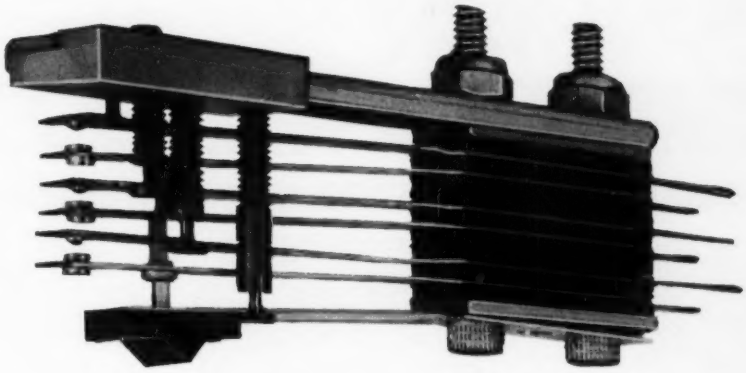
"True friends have no solitary joy or sorrow."—WILLIAM ELLERY CHANNING.

Recent Quotations of Telephone Stocks

	1/30/59 BID	1/30/59 ASKED	1/2/59 BID	1/2/59 ASKED
Anglo-Canadian Telephone Co.	43	43¾	43¼	44
California Interstate Telephone Co.	15¾	16¼	13⅝	14
California Pacific Utilities Co.	36	37	32¾	33¼
California Water & Telephone Co.	26¾	27¼	24½	24⅞
Carolina Telephone & Telegraph Co.	156	Bid	152	154
Central Telephone Co.	27	27¾	24¾	25¼
Chenango & Unadilla Telephone Corp.	24	26	24	26
Cincinnati & Suburban Bell Telephone Co.	94½	95½	91½	92½
Commonwealth Telephone Co. of Ohio	19½	20¼	19¾	20¼
Florida Telephone Corp.—Class A	30	30¾	26¾	27½
General Telephone Corp.—Common	62⅜	(Last Sale)	61⅛	(Last Sale)
Indiana Telephone Corp.	17	18½	17	19
Inter-County Telephone & Telegraph Co.	56	60	53	54½
Inter-Mountain Telephone Co.	15½	16	15	15¾
Lincoln Telephone & Telegraph Co.	56½	Bid	56½	Bid
Middle States Telephone Co. of Illinois	24	25	22½	23¼
North Carolina Telephone Co.	$1.45	1.55	$1.00	1.05
Northern Ohio Telephone Co.	44	46	38¾	39½
Peoples Telephone Co.	90	Bid	90	Bid
Rochester Telephone Corp.	24½	24⅞	24	24½
Southern Nevada Telephone Co.	21	22	21	22
Southern New England Telephone Co.	43¼	43¾	43½	44
Southwestern States Telephone Co.	25¼	25¾	25¾	26¼
Telephone Service Co. of Ohio—Class A	134	139	131	135
Tidewater Telephone Co.	23½	25	24	25
United Utilities, Inc.	30	30¾	31	31½
West Coast Telephone Co.	25¼	25¾	22¾	23¼
Western Light & Telephone Co., Inc.	41½	42¼	39	39¾

(Quotations supplied by Merrill Lynch, Pierce, Fenner & Smith)

ESCO RINGING EQUIPMENT



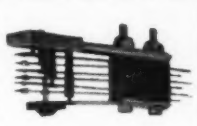
MEMBER

. . . a new twist in interrupter design assures simple, permanent pile-up adjustment

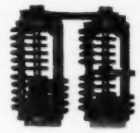
Just a simple twist of the set screws in ESCO Interrupter Pile-Ups, and you get accurate spring adjustments that stay put. You never need to use old-fashioned spring bending methods. Springs and contacts last longer because springs retain their original shape and tension, and contacts stay in alignment. This new design, too, allows up to six adjustable springs on the same pile up and that means better timing with fewer cams.

But this exclusive adjustment feature is just one of many reasons why operators and engineers who design and install equipment insist on ESCO. Compact vertical-mounting, factory pre-wiring, and permanently aligned drives on Esco Ringing Assemblies are other clinching reasons.

Why not find out for yourself why only ESCO Ringing Equipment can give the kind of service that satisfies operators and their subscribers alike. ***Write today for full information.***



Screw adjusted pile-ups



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Combination alternators

Lifetime drive motors

"Ready-to-go" pre-wiring

Permanently aligned drives

ADDITIONAL ESCO FEATURES (details in future ads in this series) explain why ESCO components are included in the installations of prominent suppliers like Automatic Electric Co., Federal Telephone and Radio Corp., Kellogg Switchboard Supply Co., Leich Sales Corp., Stromberg-Carlson Co.

ELECTRIC SPECIALTY CO.
176 South Street, Stamford, Connecticut

BELL TELEP

FEBRUARY 10th—NBC-TV

PRES

"AMERICAN

RISË STEVENS

sings two arias from
Victor Herbert's "Natoma".

ELLA FITZGERALD & DUKE ELLINGTON

together for the first time on television to bring you their interpretations of American jazz classics.

And as a Special Added Attraction

THE NEW YORK CITY BALLET COMPANY

starring

JACQUES D'AMBOISE & MELISSA HAYDEN

and featuring

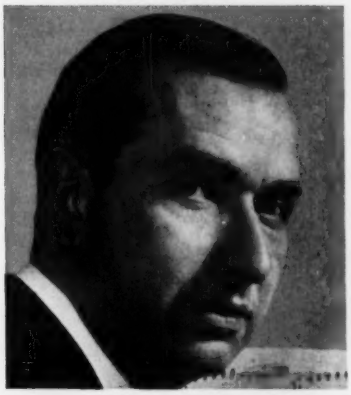
DONALD VOORHEES AND THE BELL TELEPHONE ORCHESTRA

HONE HOUR

ENTS

FEBRUARY 10th—NBC-TV

FESTIVAL"



MARTHA WRIGHT & RUSSELL NYPE

singing a group of Jerome Kern's love songs from his early musical comedies.

GRANT JOHANNESEN

playing the brilliant finale of Gershwin's "Concerto in F".

Favorite American music of many kinds will be presented on Bell Telephone Hour, televised live and in color on February 10th.

Here's a program your whole family will certainly enjoy. For not often is such a variety of American music presented on one show—and not often are so many stars from the musical world collected on one stage.

The commercials on Bell Telephone Hour are real examples of merchandising telephone products in an important new live television program which will be viewed by millions. On February 10th, for instance, there will be commercials about extension phones, and local and long distance usage.

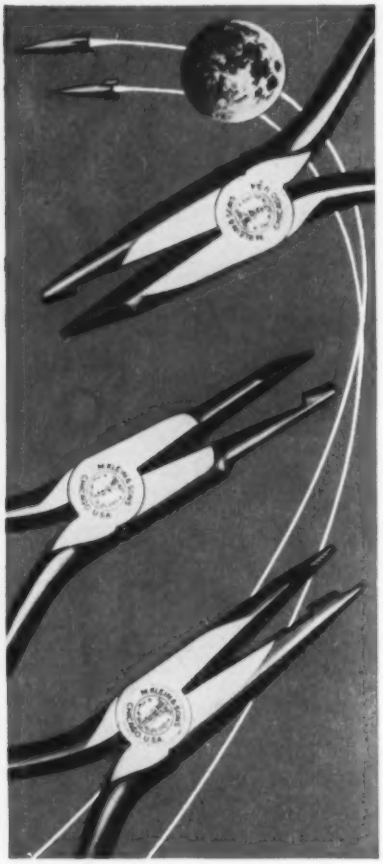
Consult your local TV listings for time and channel in your community. February 10th—NBC-TV—8-9 p.m., E.S.T.

PRESENTED BY THE

BELL TELEPHONE SYSTEM

3 KLEIN PLIERS

to make electrical wiring easier



Three newly engineered Klein Pliers which will solve difficult problems in the wiring of electronic assemblies.

ALL-PURPOSE ELECTRONIC PLIER

Shear blade cuts flush and holds clipped end of wire—Requires no sharpening; will cut hard or soft wire. Smooth, continuous action prevents shock which may damage resistors. For bare wire up to 18 gauge. Patent pending.
No. 260-6—length 6⅜"
No. 260-6C—with coil spring that holds jaws open.

NEEDLE-NOSE PLIER

Similar to No. 260-6 but nose has been slimmed to permit use in confined areas. Patent pending.
No. 261-6—length 6⅜"
No. 261-6C—with coil spring to hold jaws open

PLIER WITH KNIFE AT TIP

Jaws behind blade hold clipped wire end
A shear-cutting plier that will cut hard or soft wire. Coil spring to keep jaws apart. Pat. No. 2,848,724.
No. 208-6PC—length 6⅜"

Write for Catalog 101-A, which shows the complete line of Klein Pliers, including 20 pliers recently developed.

Mathias Established 1857 **KLEIN** & Sons Chicago, Ill., U.S.A.
7200 McCORMICK ROAD • CHICAGO 45, ILLINOIS

MICROWAVE TECHNIQUES

Concluded from page 26

In the off frequency condition, however, it presents a reactive appearance. This will cause the direct current coming from one of the crystals to be greater or less than the other. A change of frequency on the part of klystron then results in a change of voltage on the control wires going back to the power supply. This action is the same as that of a discriminator in a frequency modulation receiver; hence these crystals comprise an automatic frequency control discriminator.

The direct current fed back to the power supply from these crystals causes an adjustment to be made on the repeller electrode of the transmitting klystron. This brings the frequency back into line. An accuracy of .05 per cent is possible with this system.

The microwaves being generated by the klystron, in addition to activating the AFC equipment, also proceed through the wave guide towards the antenna. On the way they pass through a ferrite device in the wave guide which acts as an isolator. This provides an easy forward path for the microwaves, but introduces about 40 db of loss to any signal coming back from the antenna. This prevents reflected waves from interfering with the operation of the transmitting klystron.

From the isolator, the wave enters a transmitting band-pass filter. This filter has two stages, each of which is electrically equivalent to a coil and a condenser. At lower frequencies a filter would be exactly that, however, at microwaves the same result is achieved by putting cavities in the wave guide. These cavities are tuned to the exact frequency which is to be passed. The transmitted microwaves turn at the T section in the wave guide where they are carried upward and delivered to the antenna.

Receiving

A different frequency is used for receiving than is used for transmitting in a system like that shown in *Fig. 3.1.* When the received signal is caught by the antenna, it is funneled down the wave guide as shown in the left of the drawing. It will not detour back in the transmitter because of the transmitting band-pass filter and the ferrite isolator. The receiving band-pass filter, like the one used on the transmitter, is made up of tuned cavities, four in this case. They also are the equivalent of a tuned coil and condenser combination. These filters pass only the wanted microwave frequency, which is coming from the distant transmitter. It proceeds to the bottom of the wave guide, where it encounters the mixer crystal.

The receiving klystron, the VA 221, is the equivalent of a local oscillator in a regular superheterodyne set. It is arranged to oscillate at a frequency which when mixed with the 6,000 megacycle receive frequency will result in a 70-megacycle intermediate frequency. The microwaves from this klystron travel down the wave guide and terminate in a resistance, however, part of the energy goes through the directional coupler into the adjacent wave guide. These waves as well as the received waves join in the mixer and the intermediate frequency results.

The receiving klystron has an automatic frequency control feature, which is part of the intermediate frequency amplifier. The IF amplifier has several stages which are necessary to amplify the weak microwave signal being received. After the signal is amplified to a suitable level, it is delivered to a base band receiving unit and then separated by the carrier equipment into the individual trunks.

In the simplified drawing accompanying this article, several features and adjustments have been omitted for the sake of clarity. For example, this particular equipment uses a circulator between the equipment and the antenna. This permits other microwave systems, including a standby, to use the same antenna without reflection problems.

* * *

Reference works consulted in the course of preparation of these articles included:

The Radio Amateur's Handbook (American Radio Relay League)
Terman's Electronic and Radio Engineering (McGraw Hill)
Aviation Electronics Technician 1 & C (Government Printing Office)

A list of the manufacturers of microwave equipment, and a method of computing approximate costs is included in the Telephone Engineering and Construction Manual, Section 930, Addendum No. 1. This is available from the Rural Electrification Administration, Washington, D. C.

The writer expresses his gratitude to the Lenkurt Electric Co., who supplied photographs and drawings of the equipment discussed.

(The End)

PLANT MAN'S NOTEBOOK

Concluded from page 30

types of radiation on materials of interest to the wire and cable industry are surveyed and the magnitude of the problem presented by these radiations is estimated in the paper.

Still another paper in phase with this space age was "Evaluation of Multiconductor Cables Used in Ground-to-Air Guided-Missile Systems" by T. J. Horan and J. J. Roache of Frankford Arsenal. It explains that the distribution of various elements of land-based fire control of guided missile systems over a large area dictates the use of interconnecting cables. These cables provide the path for transmission of power and intelligence between units which comprise the system. Consequently, reliability is essential under all environmental limits of both operation and storage, to attain the ability to conduct military operations in any area of the world.

This annual meeting of industry and Signal Corps research has a continuing interest and the attendance has increased each year. There is little doubt that the success of the symposium is due at least, in part, to the fact that it is the only one of its kind and that it meets an important need in the communications industry.

DEW LINE, WHITE ALICE

Continued from page 24

of North America, with its own dependable communications network.

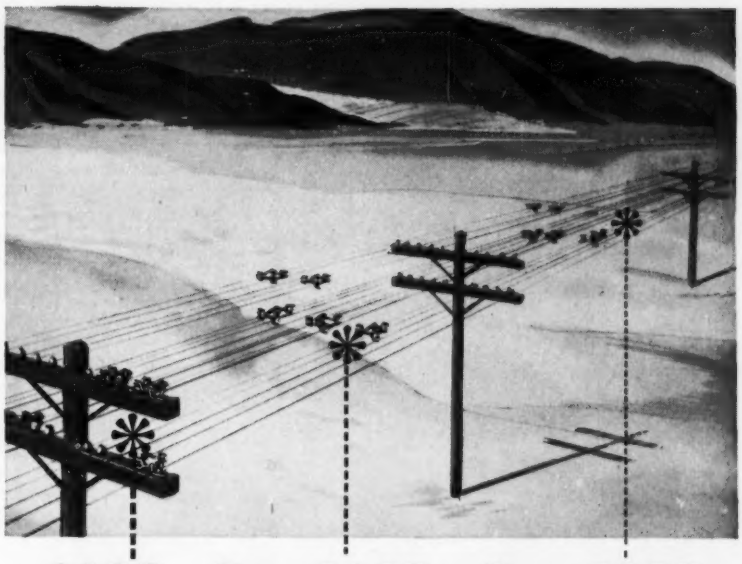
The Federal Electric Corp. (FEC) of Paramus, N. J., service organization of International Telephone & Telegraph Corp., maintains and operates the DEW Line and White Alice projects, under contracts with the U. S. Air Force.

The technicians manning the DEW Line are civilians. Their companions are USAF personnel. The air force men are members of the 4601st Support Group (DEW).

Installed TACAN

FEC is not a newcomer in the field of communication projects in polar areas, having installed the TACAN air navigation network in Alaska.

President of Federal Electric Corp. is Maj. Gen. Francis H. Lanahan (U. S. A., Ret.), an expert in the field of communications. In 1951, General Lanahan was the first chief signal officer in the Supreme Headquarters of the Allied Powers in Europe (SHAPE). And, retired Vice Adm. Richard H.



CASE after CASE after CASE

Case®

TRANSPOSITION BRACKETS

proved best...world wide

Transposing wires to help expand toll circuits, carrier systems, balance out cross-talk and reduce noise levels has proven itself, installation after installation, throughout the world. Case aluminum Transposition Brackets for cross-arm and span-point transpositions have proved to be the outstanding choice.

- **NEW, IMPROVED DESIGN** . . . the cross-arm mounting slot **now extended to fit all standard 12" and 8" pin spacings.**
- **UNIQUE SPAN-POINT DESIGN** . . . the **only** bracket designed especially for mid-span transpositions . . . eliminates special transposition poles.
- **LIGHTWEIGHT** . . . non-corrosive aluminum cross-arm bracket—4 lbs.*; span-point bracket—3½ lbs.* *(including insulators and bushings)
- **ROLLER SYSTEM** . . . insulators roll, eliminating wire dragging, bracket distortion and protecting wire insulation in stringing.
- **SPECIAL RUBBER BUSHINGS** . . . assures continued communication service in the event of glass insulator breakage.

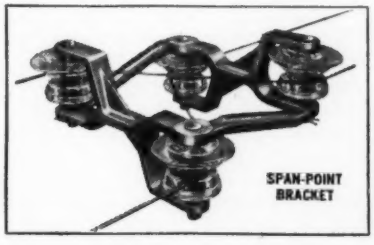
SOLD BY LEADING DISTRIBUTORS IN THE U. S.

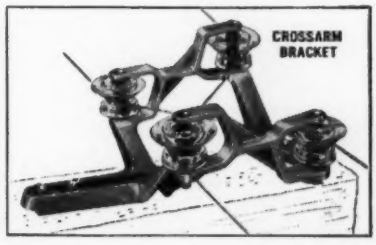
CASE BRACKETS . . . STRONG, LONG-LASTING, ECONOMICAL, ESPECIALLY ADAPTED FOR CARRIER-CIRCUIT CONSTRUCTION

Write today for free illustrated brochure.

TRANSANDEAN ASSOCIATES, INC.

305 MAIN STREET, ORANGE, NEW JERSEY





POLE PRUNERS

No. 11
Cuts up to 1" branches. A strong, durable, easy cutting 18 foot tree pruning unit. Spruce extension poles in 6 foot sections, with telescoping aluminum joints.

No. 12
Cuts up to 1½" branches. Pruner head is malleable iron casting, husky, unbreakable. Smooth, easy cutting action.

LOPPING SHEARS
Heavy duty, fast easy cutting loppers designed for utility use.

No. 75
Compound lever cutting action, smoothly slices through 1¼" to 2" branches.

Nos. 525, 530
The famous "Tiffany" pattern lopping shears 25" and 30" models. Cut branches up to 1¾".

PRUNING SAWS

No. 1826
26" blade of Sandvik Swedish steel especially designed for true work. For those spots where a chain saw can't operate.

Send for literature and additional information on pruning tools of all types.

Quality Tools
SEYMOUR SMITH
Since 1850

SEYMOUR SMITH & SON, INC.
Oakville, Connecticut, U. S. A.

Sales Representative
JOHN H. GRAHAM & CO. INC.
105 Duane Street, New York 8, New York

Cruzen (U. S. N.), FEC vice president and manager of the DEW Line project, was second in command to the late Adm. Richard E. Byrd on two of the latter's Antarctic expeditions.

The mission of the 4601st Support Group is to "discharge all contractual administration responsibilities of the U. S. Air Force with FEC concerning the operation, maintenance and support of the DEW Line and to insure adequate support by all military agencies."

Most FEC field employes come from the United States and Canada, but others come from as far away as Australia, New Zealand, the British Isles, Denmark and Norway. Some DEW Liners are accustomed to the pleasant climates of Florida and California while others, coming from northern Canada, feel perfectly at home.

Field technicians average a 54-hour work week. For entertainment in their free time, FEC has supplied its larger stations with all types of recreational facilities and equipment. Regular church services, movies, libraries, music, ping pong and other games are available at the main stations. These facilities are also available to Eskimos employed by the company. Amateur ham operators can use short wave radio equipment provided by the company. Fishing in coastal areas is of the finest, but hunting is permitted only in a few sectors. Photography is the most popular hobby among DEW Liners. Fully equipped photo laboratories have been established by the company for the employes' use.

All of the comforts it is possible to supply are furnished to the men of the DEW Line. The object is simple: To keep them in top condition to perform their vital jobs manning the radar scopes around the clock to protect North America.

PLANNING AND MARKETING

Concluded from page 22

ence. The past does not necessarily indicate the best one can do. It doesn't reflect modern planning and marketing techniques and philosophies. To project past experience, therefore, has the effect of projecting past errors and shortcomings.

You may be interested to know what a long-range forecast, based on population usage as I've just described, shows for General Telephone of Florida —We now have about 328,000 telephones and estimate 1,820,000 telephones in our exchanges by 1976.

This is nearly a six-fold increase. This is a much larger number than would be obtained by projecting past experience. The population basis for long-range forecasts has merit anywhere. Here in Florida it has particular value because of the fast rate you've grown and will continue to grow. You can see that we think a marketing program toward which future activities will be directed is closely interrelated with and to some extent, dependent upon a company's long-range business development plans.

"Marketing" and "merchandising" have been used interchangeably in this presentation. While a point can be made with either term. I am inclined to the belief that "marketing" more accurately describes what we are aiming to accomplish.

In closing, there are two points I wish to make. One is the fact that a good marketing program is based upon long-range planning. By this are set distant objectives to guide short range planning and toward which year-to-year activities are oriented.

The second point is that our long-range objectives need not be precise in order to serve a useful purpose. We all know that it is impossible to foretell accurately what the future holds. But, if we carefully consider all the facts available to us and combine these with the best considered judgment we can call up to form a long range plan and program—even though we have to change it from time to time—we certainly will be ahead of taking the easy course of letting the future take care of itself.

Crash Kills Four Kansas Telephone Men, Injures One

Four Western Light & Telephone Co. men were killed and one was seriously injured on Jan. 19 when the repair truck in which they were riding, was struck by a train near Haviland, Kan.

The eastbound Rock Island's Imperial struck the telephone truck broadside. The force of the collision wrapped the bed of the truck around the diesel engine. The train was traveling about 75 miles an hour and continued about a mile before it stopped.

Dead are Virvil H. Kinsey, Robert R. Sanders, Jack Jacobs and Don Shelite.

Ernest Moorse, crew foreman, was taken to the Pratt County Hospital in Pratt, Kan., where he was treated for a broken pelvis, cuts, abrasions, and internal injuries.

The five men all are from Medicine Lodge, Kan.

Obituaries

ALEXANDER M. MACLENNAN, 64, who retired recently as assistant vice president, public relations, International Telephone & Telegraph Corp., died on Jan. 19 of a heart attack at Del Ray Beach, Fla.

One of the nation's most widely known public relations executives in the business and financial field, he had been in public relations for 30 years until his retirement last September.

Mr. MacLennan joined ITT in 1929 as manager of production for all printing and display matter and two years later became advertising manager in charge of publicity and press relations for the corporation and its associated companies. He was appointed assistant vice president in 1943.

Mr. MacLennan was born in Glasgow, Scotland, and was educated in the public schools of Glasgow. He attended McGill University, Montreal, Canada, where he studied ship design, and Drexel Institute, Philadelphia, where he studied municipal engineering.

He served in World War I, from 1915 to 1918, with the famous Black Watch, 13th Battalion, of the Canadian Expeditionary Forces, receiving the Victory and British Empire campaign medals. He also held the Orden de Merito de Chile (rank of Caballero).

Mr. MacLennan, who became an American citizen, began his business career in this country as an editor and proofreader for the N.W. Ayer advertising agency at Philadelphia, and in 1927 was placed in charge of the composing room section of the agency's printing department. In 1919-1921 he was assistant chief draftsman for the National Shipbuilding Corp., Des Trois Rivieres, Quebec, and assistant chief draftsman in charge of hull construction, Bethlehem Shipbuilding Corp., Bethlehem, Pa. From 1921 to 1923 he was a proofreader for George F. Lashar Publishing Co., Philadelphia.

Mr. MacLennan is survived by his wife, Dorothy; four children by previous marriage, Mrs. Winifred Urffer, Fords, N.J.; Mrs. Lillian Nable, Bloomfield, N.J.; Mrs. Phyllis Kahn, Massapequa, L.I., N.Y., and A. Norman MacLennan, England, and four brothers and two sisters, Duncan, James, John, Dougald and Mrs. Flora Francis and Mrs. Annabella Blake, all residents of Canada.

•

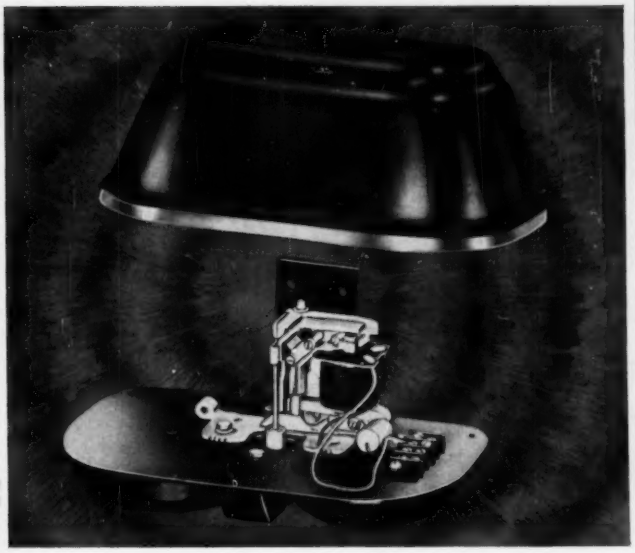
DAVID GRAHAM GARDNER SR., 85, retired president of the Nocona (Tex.) Telephone Co., died at his home on Jan. 26, after an illness of six months.

Mr. Gardner was born in Granbury, Tex., and moved to Nocona in 1904

KELLOGG

LOUD RINGING BELL

commands attention anywhere!



Ideal for any noisy or exposed location: factories, foundries, mills, taxi stands, school yards, docks, construction sites, police or fire alarms.

- **Compatible** with all types of circuits, including impedance ringers.
- **Weather-proof,** rugged construction.
- **Easy to mount:** requires only two screws.
- **Available** in harmonic, synchromonic, decimonic ringing frequencies – or imposed straight-line ringers.

Ask your Kellogg sales representative for complete information.

KELLOGG Communications Division of ITT
CHICAGO, ILLINOIS

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue
Chicago 38, Ill. Communications division of
International Telephone and Telegraph Corporation

For a complete list of Kellogg offices, see pages 4-5.

Wire-Saving Snubbing Action . . . with this

KEARNEY

SNUB-R-GRIP DROP WIRE GRIP

On poles or buildings this free-swinging drop wire tie provides a "snubbing" action stronger than the rated strength of the wire. This is possible because the unique spiral grip distributes the pull over a long length of wire. KEARNEY Snub-R-Grips are quickly installed and easily salvaged. Just wrap the wire (twisted pair, parallel or synthetic-jacketed) into the grooved spiral. A portion of the groove's inner surface is specially coated to give maximum non-slip grip . . . without damage to insulation.

For Better Construction . . . Safer Maintenance

Specify 268

KEARNEY PRODUCTS

4224-42 Clayton Ave. • St. Louis 10, Mo.
Canadian Plant: Guelph, Ontario

when he bought one of three telephone companies.

He later bought out his competitors and operated the Nocona telephone exchange until he retired 10 years ago.

He turned over operations to his son, D. G. Gardner Jr., who is now president of the Texas Telephone Association.

Survivors other than his son include his widow; a daughter, Mrs. N. R. Holland of Fort Worth; two brothers, C. G. Gardner of Sentinel, Okla., and Sam Gardner of Granbury, and a sister, Mrs. Akard Donothan of Granbury.

Bell Lab's Kelly Receives Forrestal Memorial Award

Dr. Mervin J. Kelly, recently named chairman of the board of Bell Telephone Laboratories, has been chosen by the National Security Industrial Association to receive its 1958 James Forrestal Memorial Award.

He joins President Eisenhower, David Sarnoff, General Alfred M. Gruenther, and Admiral Arthur W. Radford, who were similarly honored in past years for their accomplishments in furthering American defense.

In recognition of his war work, Dr. Kelly previously was awarded the Presidential Certificate of Merit.

Dr. Kelly was vice chairman of the U. S. Air Force's Scientific Advisory Board from 1950 through 1954 and chairman in 1955. He also served as advisor to Secretary Finletter of the Air Force on the organization and expansion of its Research & Development (R. & D.) work. "For distinguished service to air power in the fields of science," the Air Force Association awarded Dr. Kelly its 1953 trophy. He also holds the Air Force Exceptional Service Award presented by Secretary of the Air Force Douglas in July 1957. He is a member of the naval research advisory committee and was its vice chairman in 1956.

Dr. Kelly has advised the Atomic Energy Commission on its R. & D. programs. In 1953, he was chairman of a committee for the Secretary of Defense to study the problems of continental defense against atomic attack and to make recommendations on organization and programs. He was also a member of the Hoover Commission committee on business organization of the Department of Defense, and is chairman of a committee for the Secretary of Commerce to study the scientific program of the Department of Commerce. He is a member at large of the Defense Science Board and is chairman of the Bureau of Standards' statutory visiting committee.

Dr. Kelly is a life member of the Massachusetts Institute of Technology Corp. and was formerly chairman of the advisory council to the department of electrical engineering at Princeton University. He is a member of New York University's advisory board to the Institute of Mathematical Science, and a trustee of the Alfred P. Sloan Foundation, Inc., a member of the committee for the atoms for peace awards established by the Ford Motor Co. Fund, a fellow of the American Physical Society, the Acoustical Society of America, the Institute of America, the Institute of Radio Engineers, and the American Institute of Electrical Engineers; a member of the National Academy of Sciences, the American Philosophical Society, a foreign member of the Swedish Royal Academy of Sciences, and a member of the honor scientific and engineering societies of

Andrew J. Moore, president, Moore Telephone System, Inc., inspecting Strowger automatic equipment in new air-conditioned Caro, Mich. exchange. The Moore company recently installed direct dialing of inter-company calls for Detroit Edison Co. at Caro, Edison, and Port Huron.

Sigma XI, Tau Beta Pi and Eta Kappa Nu.

In April 1954, Dr. Kelly was awarded the 1954 medal of the Industrial Research Institute. In October 1955, he was awarded the Christopher Columbus International Communication prize.

He has been named to receive the 1959 John Fritz Medal awarded by four leading American engineering societies.

Dr. Kelly was graduated in 1914 from the Missouri School of Mines & Metallurgy with a bachelor of science degree. In 1915, he received a master of science degree from the University of Kentucky where he served for two years as instructor of physics. In 1918, he was awarded a Ph.D. degree by the University of Chicago, and since then has received many honorary doctor's degrees.

Dr. Kelly has served on the board of directors of Bell Telephone Laboratories since 1944. In addition, he is a director of the Sandia Corp., The Prudential Insurance Co. of America, and Bausch & Lomb Optical Co.

James Kelly to Head Rex Electronic Components

Gilbert E. Bell, president of the Rex Corp., (a subsidiary of American Enka Corp.), West Acton, Mass., has announced the formation of an electronic components department.

James D. Kelly has been named manager of the new department which will produce components for electronic computers. Pilot tests of the yet-to-be announced product are nearing completion and details are expected to be released shortly.

Before joining Rex, Mr. Kelly was associated with MIT's Lincoln Laboratory where he worked on the prototype SAGE (Semi-Automatic Ground Environment) system and on the design of special digital systems. He holds a bachelor's degree in electrical engineering and a master's in business administration, both from Cornell.

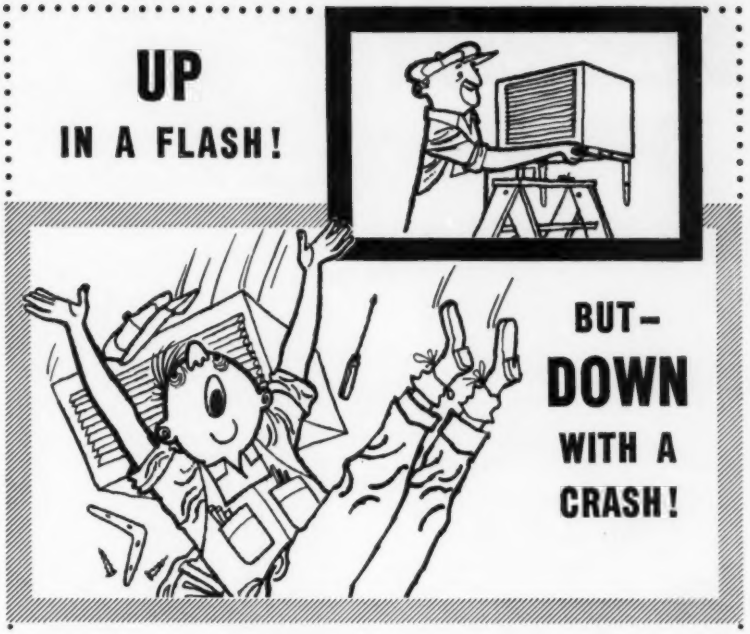
Philco Corp. Appoints Kirk Senior Staff Engineer

The appointment of Donald Kirk as senior staff engineer-communications engineering, was announced on Jan. 30 by Philco Corp.'s government and industrial division.

Mr. Kirk was formerly director of engineering for the Jerrold Electronics Corp.

During his tour of duty with the U. S. Navy (1942-53), he was an aviator and later an electronics engineer with the Naval Research Laboratories.

He is an amateur radio operator and



Beware of inferior screw anchors

INSIST ON BRANDED RAWLPLUGS

Whenever you fasten fixtures to plaster, brick, construction block, or concrete, use time-tested Rawlplugs to put work up fast, put it up to last. Now they're branded with the name "RAWL" ... look for it to make sure you get genuine Rawlplugs.

Your RAWL distributor has a complete stock of Rawlplugs, hand or power Rawldrills for masonry drilling, and a full line of other masonry anchoring products. To help you select the right masonry anchor for your job, he'll gladly give you your complimentary copy of the "Masonry Anchoring Handbook." Ask him for it or write us . . . it's free.

R-1

THE RAWLPLUG COMPANY, INC.

230 Petersville Road, New Rochelle, N. Y.

Teleprinter COMMUNICATION

Low Cost Compact Self-Contained All Electronic

Comtel®

TELEGRAPH TERMINAL

For High and Low Speed Telegraph Communication

Provides 14 frequency shift telegraph channels in the voice band from 765 to 2975 cps. All essential controls are provided together with an internal 60 MA loop supply for the operation of teleprinters. Equipment is available as a dual transmitter, dual receiver, or transceiver for either simplex, half-duplex, or full-duplex operation. Equipment may be applied to telephone lines, or VHF and Microwave circuits for transmission.

Special Accessories for Telegraph System Applications

The DC Hybrid Accessory HA-8555 will provide for half-duplex telegraph operation with break-in facilities on an all electronic basis. The Party Line Keying Accessory HB-8691 may be used in party line applications where frequency shift keying is desired. The Leg Adapter Panel HB-8690 provides convenient patching facilities and relay keying for neutral and polar operation over DC lines.

WE CAN HELP YOU

Our 35 years of electronic experience is yours for the asking. Send for our New Product sheets fully describing the Model 995 Comtel and various accessories.

Radio Frequency
LABORATORIES, INC.
Boonton, New Jersey, U. S. A.

co-inventor of a traveling wave amplifier tube. He received his B.S. degree in electrical engineering from Alabama Polytechnic Institute and master's degree from the U. S. Naval Academy.

Onan Promotes Three, Increases Market Coverage

Three regional sales managers have been promoted to positions created within the sales department, according to Roy E. Mullin, general sales manager, D. W. Onan & Sons Inc.

E. C. SWENSON

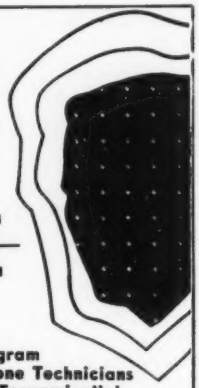
Edwin C. Swenson becomes eastern regional sales manager. He will be in charge of Onan sales in the territory east of the Ohio and Mississippi rivers.

A. R. JOHNSON

Arthur R. Johnson is western regional sales manager for the United States and for all of Canada.

Paul F. Richardson moves up to manager, special products division, in charge of all Onan special products, including welders, engine-compressors and Kab Koolers.

TRAIN WITH TTI NOW



a Complete Program To Train Telephone Technicians Quickly, Easily, Economically!

BASIC FUNDAMENTALS AC-DC ELECTRICITY, ELECTRONICS, CARRIER THEORY AND OPERATION ADVANCED TELEPHONE CARRIER TECHNIQUES.

For Individuals or Company Classes Home Study or In-Residence

Now, for the first time a practical, comprehensive training program developed in collaboration with major American telephone companies and equipment manufacturers and perfected in actual use by plant engineers and installation technicians. TTI fully qualifies you to install, operate and maintain telephone equipment. Write for complete information TODAY! Use this convenient coupon!

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Please send me full information about TTI's unique training program.

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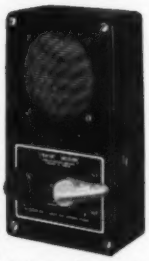
Stewart

TEST EQUIPMENT

COMMUNICATIONS UNIT Model M

- For Inter-com Use
- Saves Time & Money
- Restores Service Faster



Unit enables point of work communication in checking and aligning exchange equipment. Transistor powered amplifier with combination transmitter-speaker, batteries and switching. Output + 3 D B into line. — 12 D B from line provides sound output which can be heard from 20 to 30 feet. Units may be operated through carrier equipment.

STEWART BROTHERS
Division of Instrument Laboratories
Chicago 10, Illinois

P. F. RICHARDSON

All three men started with the company in 1942. Swenson and Johnson were in the service department and Richardson in purchasing, before going into sales.

The new positions were created, Mullin said, to secure complete market coverage of all Onan products and provide for greater concentration of sales activities, especially the new line of diesel electric plants designed for emergency service.

Plan National Promotion of Electronic Secretary

A national advertising and merchandising campaign to promote the use of the Electronic Secretary automatic telephone answering unit has been developed by the General Telephone System. The campaign will be backed by newspaper advertising in every General operating company area, plus an active merchandising program.

Spearheading the campaign, will be a four-color full page ad on the Electronic Secretary unit in *The Saturday Evening Post*. An additional appearance in *The Post* in the "Show House" section; full color page in *Business Week, Time, Newsweek, U.S. News and World Report*, and ads in financial publications and financial pages of newspapers including *Financial World, Analysts Journal, Harvard Business Review, New York Times*, and *Wall Street Journal*, are scheduled during the campaign.

The local newspaper advertising will be supported by a special, four-color merchandising program; displays in business offices; and other general promotions in each operating area.

Other telephone companies that are planning to participate in the Elec-

DON'T BLOW YOUR TOP over demands for new installations on those "over-burdened" party lines• • •get

low-cost

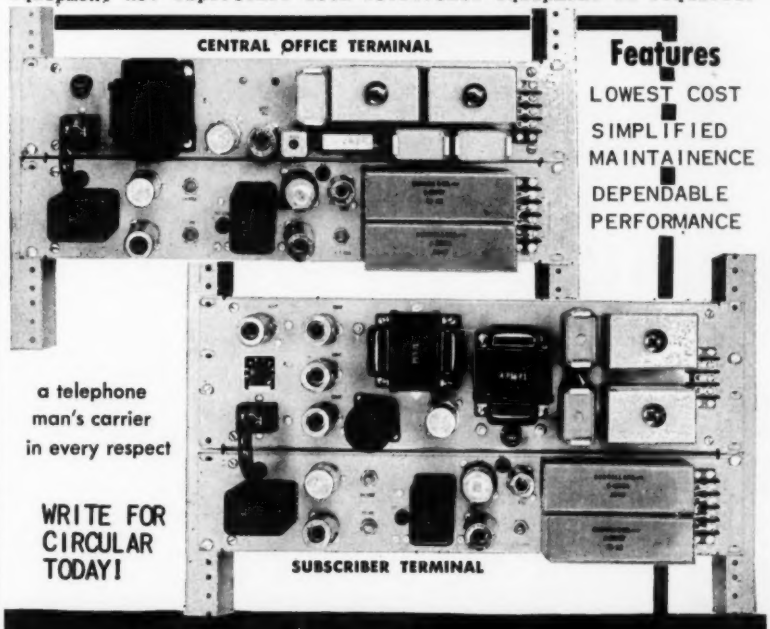
Budelman TYPE 16B

7 CHANNELS MULTI-PARTY SUBSCRIBER **Carrier**

FULLY-SELECTIVE 10 PARTY DIVIDED RINGING
SEMI-SELECTIVE 10 PARTY BRIDGED RINGING
SINGLE FREQUENCY CODED RINGING

TYPE 16B TELEPHONE CARRIER WILL:
..provide new subscriber service on party lines...upgrade service on existing party lines...create new circuits to new or expanding areas or to subscribers beyond present loop range of 1200 ohms... free a party line for private line or pay station service...provide additional trunks to remote PBX, PABX or key telephone systems...postpone cable plant expansion programs.....ALL WITHOUT ADDING TO YOUR OUTSIDE PLANT OR DISTURBING EXISTING SERVICE

Employing crystal controlled oscillators and automatic regulation, normally found only in carrier systems costing up to three times as much, type 16B AM Carrier features the lowest power consumption, fewest vacuum tubes and most simplified circuitry of any carrier system on the market. Consisting of 7 channels in the frequency range of 10-140kc it is used on any type of wire facility whose attenuation at carrier frequencies does not exceed 35 DB. Installation and operation are simple. No expensive test equipment nor experience with electronic equipment is required.



BUCKEYE TELEPHONE & SUPPLY CO.
1250 KINNEAR RD. COLUMBUS 21, OHIO

TELEPHONE COMPANIES
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UTILITIES
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TURNPIKE COMMISSIONS
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PIPELINE COMPANIES
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AND OTHER

MICROWAVE

USERS *specify*

Typical design of Stainless microwave tower for hurricane area.

STAINLESS TOWERS

Let Stainless' experienced engineering staff assist you with your microwave or radio tower problems.

Ask today for your free booklet describing many Stainless installations.

Stainless, inc.
NORTH WALES • PENNSYLVANIA

tronic Secretary sales program may obtain any of the promotional material from General Telephone's New York City office at 260 Madison Ave. or from Leich Sales, 427 W. Randolph St., Chicago, Ill.

The local promotions will include demonstrations to clubs, secretarial schools, high schools, and business groups, and local publicity on businesses which have installed the Electronic Secretary unit.

The entire program is under the direction of R. Parker Sullivan, vice president-merchandising, and is scheduled to continue through March.

Stromberg Sales Meeting Takes on New Look

Stromberg-Carlson's annual telecommunication sales conference in Rochester took on a new look this year.

Veteran field men in the audience met new faces on the stage as personnel from the division's advertising department and its agency presented a burlesque-type skit. Through this humorous presentation, they emphasized the *Impact*-style advertising used successfully by the company during 1958. In his report, Advertising Manager F. W. Haupt assured his audience that the same *Impact* advertising, with increased frequency, would be continued by the company during 1959. The skit was written, produced and directed by Raymand P. Weis, assistant advertising manager.

Speaking on the subject "Tomorrow is Already Here," John Voss, vice president and general manager of the telecommunication division, pointed out many of the advances—particularly in electronics—that have progressed from the laboratory to the production stage.

T. C. Thompson, general sales manager, congratulated his field force for their showing in 1958, marked by a new high in telecommunication sales in spite of the slowdown in the general economy.

The four-day session included general meetings as well as seminar-type discussions on new products in all fields of telecommunications. Each of the division's sales branches participated in the seminars, conducted by the five branch managers: W. J. Pfaender, Chicago, Ill.; J. P. Galligan, Burlingame, Cal.; R. F. Fairly, Kansas City, Mo.; W. L. Mollands, Atlanta, Ga.; and J. S. Ottalagana, Rochester, and C. T. Reynolds, national supply manager.

Among the subjects discussed were toll ticketing, switchboard products, telephone instruments, carrier systems and components and supply materials.

P. J. Lucier and G. Warren Schomaker of the finance department discussed a leasing program that has proved attractive to small and medium-sized operating companies.

Other speakers at the general meeting also stressed the important role played by telecommunications during 1958. They included Robert C. Tait, president; Gordon G. Hoit, executive vice president; Wesley M. Angle, former chairman of the board, and Arthur F. Gibson, secretary.

"*Impact* advertising will be continued by Stromberg-Carlson Co. in 1959," says F. W. Haupt, telecommunication advertising manager, addressing more than 100 sales and engineering personnel at the company's annual sales conference. They got the message first through this burlesque-type skit presented by these advertising personnel from the left: Morris Herman, Jacques Herman, Raymond Weis, assistant advertising manager; Alvin Mosher, all of Stromberg-Carlson; and Milton Lederman and Neil Gallagher, Rumrill Advertising Agency.

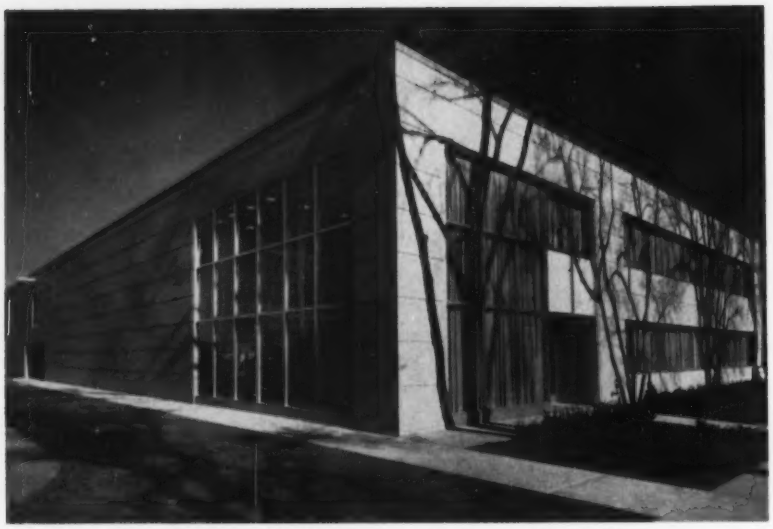
Rex

DIRECT BURIAL CABLE

TO R.E.A. PE-23 SPECIFICATIONS

For information on our complete line of plastic insulated telephone wire and cable — write for new catalog

THE REX CORPORATION
100 Hayward Road
West Acton, Massachusetts



Left: New office building of Leich Electric Co., Genoa, Ill. Right: Feature of the new building is an operating Leich dial system set behind glass partitions in the lobby.

Leich Electric Dedicates New Office Building

Over 150 guests, members of local civic groups and officers of General Telephone Corp., were present on Dec. 15, when Leich Electric Co. dedicated its new office building in Genoa, Ill.

The building is a modern brick and steel structure of contemporary design, and contains 32,400 square feet of floor area.

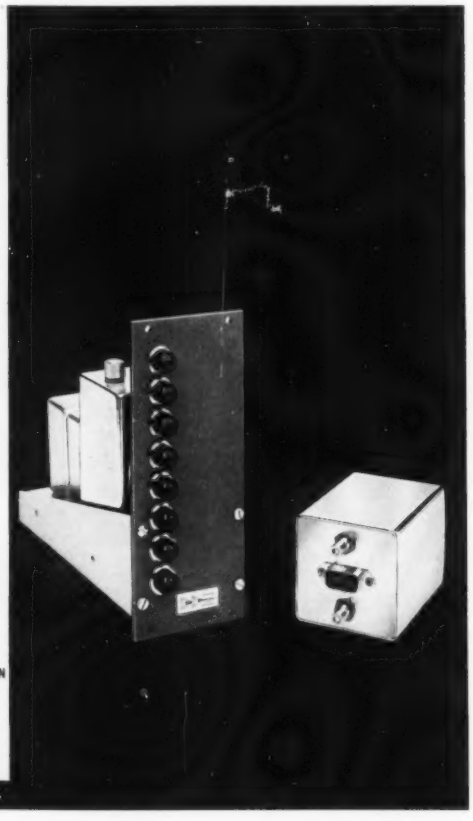
Leon M. Wells, retiring president of Leich Electric Co., stated that the new building was necessary to provide more adequate space for office, engineering and laboratory facilities and for an employes' cafeteria.

Leslie H. Warner, executive vice president of General Telephone Corp., told how Leich had grown from a building of 30,000 square feet and 75 employes in 1907 to 200,000 square feet and 750 employes today.

The new office building, is an air-conditioned, two-story structure. Twen-

A MAJOR BREAKTHROUGH IN REMOTE INDICATION & CONTROL

The MONITRON has been called *The AUTOMATIC WIRE CHIEF* because it will continuously "scan" an unlimited number of circuits or functions in an unattended central office, CDO, PBX, Repeater Station, Radio or Microwave installation. It will report normal or abnormal conditions back to a location where personnel are on duty. The MONITRON will monitor equipment for such conditions as ● Permanent Signals ● High and Low Voltage ● Cable Failure ● Fuse Alarms ● Intruder Alarms ● Fire or Temperature Alarms ● Equipment Off Normal Alarms. The MONITRON can also be used in reverse—as a remote control. Alarms can be retired, equipment reset, or apparatus turned on or off from a distant point. The MONITRON is fully transistorized. It has no relays, switches, contacts or tubes to give trouble. Condition reports are given in standard telephone fashion on panel lights. Construction is modular; units can be replaced by non-technical personnel as easy as changing a light bulb.



RESEARCH & DEVELOPMENT • PRODUCTION

MOORE ASSOCIATES, INC.

2600 SPRING ST. REDWOOD CITY, CALIF.

ty-eight different colors are used within the building.

An interesting feature of the building is an operating Leich Dial System set behind glass partitions in the lobby. This system, which handles over 100 telephone lines serving the new office, is on display for visitors.

The first floor of the building consists of the executive office area, purchasing, accounting and payroll, time study, process engineering, and production control. The cafeteria, an attractively decorated dining room which seats 188 people, completes the first floor.

The entire second floor is devoted to design engineering, specification engineering, drafting, print reproduction, laboratory, and a customer training classroom.

Recordak Elects Phillips Vice President, Sales

Van B. Phillips has been elected vice president of sales and advertising, of Recordak Corp., it is announced by John K. Boeing, president. He was previously general sales manager of Recordak, which is the subsidiary of Eastman Kodak Co. in the microfilming and document-copying fields.

V. B. PHILLIPS

A native of Oklahoma City, Mr. Phillips started his business career with the First National Bank of that city and gained experience in many different departments.

In 1936, he joined Recordak in its Dallas office where he spent several years installing microfilming in bank transit and bookkeeping departments throughout the Southwest. From 1940 to 1943, he covered the state of Oklahoma and the Texas panhandle.

Phillips was named manager of the Denver branch in 1946, regional manager for the West Coast in 1948, and in

Now... Onan Electric Plants to 200KW!

New Magneciter Generator gives important performance advantages*

Now you can have Onan engineering and Onan dependability in high-capacity plants, too! In gasoline-powered models, 100, 125, and 150KW sizes have been added to the line. New diesel models include 10, 15, 25, 35, 50, 60, 75, 100, 125, 150, 175, and 200KW capacities. All standard voltages are available.

All models are powered by heavy-duty industrial engines matched to the power requirements of the generator. Custom modifications to meet the needs of particular applications add to the versatility of the new Onan line. Automatic controls for standby installations are available for each model.

All plants 100KW and larger are Magneciter-equipped

This new Onan generator with static exciter and voltage regulator has these advantages for both standby and primary power installations:

- **Simplicity** — Eliminates hundreds of electrical connections, the commutator and its brush rig.
- **Constant voltage** — Voltage dip is less than 20% with motor starting load. Stable generator operating conditions re-establish within two seconds after load is applied.
- **Lighter weight, more compact** — Plants are shorter by a foot or more, lighter in weight.
- **Less maintenance, easier servicing** — The static exciter and regulator are externally mounted and easily accessible.

**Onan alternator with static excitation and static voltage regulation.*

Specification kit available now! Write for it!

Onan builds electric plants from 500 watts to 150KW, gasoline-powered; 3,000 watts to 200KW, Diesel-powered.

D. W. ONAN & SONS INC.

3505 University Ave. S.E., Minneapolis 14, Minnesota

ELECTRIC PLANTS • AIR-COOLED ENGINES • KAB KOOLER • GENERATORS

Onan ELECTRIC PLANTS

The High Tensile Wire with BUILT IN Safety Factor

Crapo HTL-135

COMPARE THE PHYSICAL VALUES!	
Diameter (inches)	.109
Breaking Strength (pounds)	
Rated (minimum)	1213
Average of actual tests	1350
Fatigue Endurance Strength	
In Pounds	466
In % of Ultimate Tensile Strength	35%
Elongation in 10 inches	4 to 8%

By every rule of sound engineering practice, *Crapo* HTL-135 High Tensile Telephone Wire has proved to be the most dependable and economical conductor available for long-span rural lines.

Recommended sags and tensions for this rugged, high strength wire are based on accurately determined stress strain characteristics and on maintaining loads specified by the National Electric Safety Code. Initial unloaded tensions at the lowest temperature expected never exceed the fatigue endurance limit of the wire.

Crapo HTL-135 makes possible spans to 350 feet in Heavy Loading, 540 feet in Medium Loading and 650 feet and over in Light Loading Districts with a proven margin of safety.

Electrically, *Crapo* HTL-135 provides more than ample conductivity for typical subscriber lines in rural areas. Loops of 14 to 15 miles are practical with normal voltages and equipment. Longer loops are possible where higher voltages and more sensitive telephone sets are employed. This wire also is being used successfully with subscriber carrier current installations.

For low initial cost, low maintenance cost and all 'round reliability, insist upon the strength and high fatigue endurance characteristics provided by *Crapo* HTL-135! Write for Manual N-53 containing complete engineering data!

1954 took over the same responsibility for the Midwest. He was appointed assistant general sales manager of Recordak in 1956, and general sales manager at the beginning of 1958.

Phillips served as a Navy pilot during World War II.

NATION'S CAPITAL

Continued from page 20

FCC order. He says much of the west is dependent on booster transmitters for TV reception, and many of them are community owned. His Democratic colleague, Senator Carroll, has also sponsored a resolution to block the FCC order and legalize booster stations. Senator Carroll criticized the FCC for its intended ruling and for waiting years to settle the question of booster stations.

The fact that both of these senators come from Colorado recalls the forthright position taken several years ago by another Colorado official, the former governor of that state, "Big Ed" Johnson. Johnson defied the FCC to put out of business a television appliance dealer who was voluntarily operating a booster station for the benefit of television set owners in the town of Steamboat Springs, Colo. Governor Johnson put the appliance dealer on his own "staff," swore him in as a state official, and demanded that the FCC do something about it. The FCC did nothing about it as long as Johnson was governor. But, the FCC may now follow up its intended order. Senator Allott's resolution would direct the FCC to set up rules and regulations for the operation of the booster stations and would forbid closing of any booster stations for three years.

Chase Brass Realigns Sales Executive Force

The promotion of several sales executives to new positions was announced on Jan. 21 by George B. Moseley, vice president-sales for Chase Brass & Copper Co., a subsidiary of Kennecott Copper Corp.

Paul M. Thomas, formerly midwestern regional manager, has been named manager of mill sales, making his headquarters at the Waterbury, Conn., main office of the company.

Wallace L. Brown, Chicago district manager since 1951, has been advanced to midwestern regional manager. In Chicago, Mr. Brown, in turn, will be succeeded by Alfred M. Johnson who has held a similar post in the Dallas, Tex., district since 1956.

Herman H. Kremer, a former staff manager and more recently on a spe-

cial sales assignment, has been appointed manager of marketing staff.

John L. Cotsworth has been named manager of warehouse sales.

Albert I. Blank has been promoted to manager of product development.

AE's Savage Heads Supply; McCann to Central District

LeRoy E. Savage has been appointed director of supply sales, and Bliss K. McCann has been named to succeed him as central district manager, in the communication products division of Automatic Electric Sales Corp.

L. E. SAVAGE

Mr. Savage, having joined Automatic Electric in 1946, served as government contract service manager and assistant manager of carrier and radio sales be-

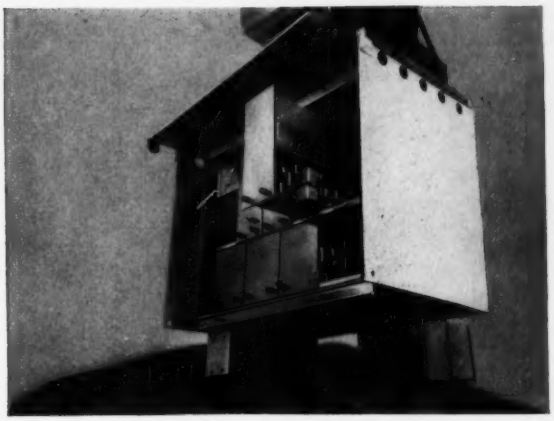
B. K. McCANN

fore becoming central district manager. He is an electrical engineering graduate of Tufts College and holds a master's degree from the Harvard Graduate School of Business Administration.

Mr. McCann, former engineering di-

New Kellogg K-31 Carrier System

Ideal for Rural Subscribers



Kellogg's new K-31 rural subscriber carrier system provides telephone companies with toll quality subscriber carrier at low cost. The system is completely transistorized, features printed circuits, miniaturized sub-assemblies and plug-in construction.

Standby power, consisting of two small batteries and a transistorized charger in a pole-mounted housing, is available. This is possible because power consumption is less than three watts even during talking.

K-31 has built-in compandors to assure quiet talking circuits and is automatically regulated to eliminate the effect of changing weather conditions over a wide range of carrier line losses.

Line-up and test procedure is very simple—a single level control for each direction of transmission. Terminating telephone type jacks are provided for ease and speed in testing. Installation time is held to a minimum by the use of a unique pole-mounted housing with built-in protected terminal blocks for external connections.

These design features plus top quality components and workmanship make K-31 reliable and stable in its operation.

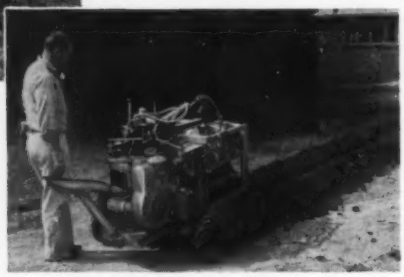
Ask your Kellogg sales representative for full details.

KELLOGG
CHICAGO, ILLINOIS
IT&T

Kellogg Switchboard and Supply Company, 6650 South Cicero Avenue, Chicago 38, Illinois. Communications Division of International Telephone and Telegraph Corporation.

Regional Offices and Warehouses: See two-page Kellogg advertisement pages 4-5 for complete listing.

Ideal For Underground Cable Work



Rugged, Inexpensive Vermeer
POW-R-DITCHERS

Looking for low-cost, time-saving trenching and ditching? Take a look at the full Pow-R-Ditcher line before you buy!

Write For Complete Information, Literature and Low Prices

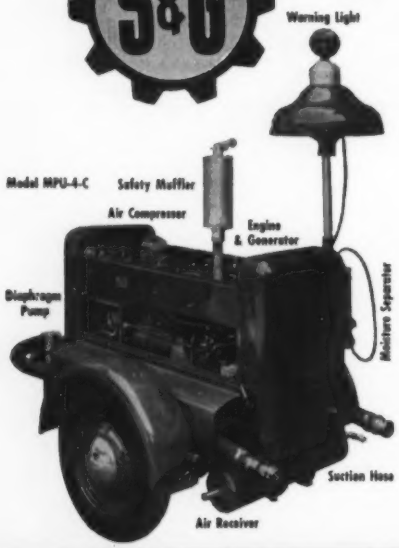
The model 4T (left above) digs 6" to 14" wide and the W-2 (right above) digs 2½" to 4" wide. (The larger 524T model digs up to 24" wide.) All are fast, rugged, self-propelled and low in price. Ideal for digging foundation footings, gas, water and sewage lines . . . or for shallow, narrow service lines.

VERMEER MANUFACTURING COMPANY
1461 W. WASHINGTON PELLA, IOWA

dependable . . . versatile . . .

S&G

Mobile Power Unit



- **Generator (slow speed for quietness) 2500 Watt, 110-Volt DC**
- **Pump—2800 GPH Diaphragm to remove seepage and drain back**
- **Air Compressor—to put cables under pressure for cut-overs or repairs** ***Furnished with or without pump and compressor***
- 300-Watt floodlight illuminates working area
- operates soldering pot and iron, electric and air tools
- electric blower to ventilate manhole
- supplies dry air for cable cut-overs, flash testing, etc.
- diaphragm pump can be operated from manhole by push button control
- buzzer signal for summoning helper
- light, easy to handle

S & G MANUFACTURING CORPORATION
P. O. Box 1309 • New Orleans 10, La. • JAckson 5-3142

vision manager of carrier and radio sales, is a native of Kansas City, Mo., and received his engineering education at Illinois Institute of Technology.

He joined Automatic Electric in January, 1952, as a carrier engineer, and was named western district manager of the division in 1956.

Drs. Muller and Vodicka On Lenkurt Research Staff

Two internationally-famed scientists —Dr. Walter Muller, a pioneer nuclear physicist, and Dr. Vladimir Vodicka, a specialist in electronics research—have joined the applied research staff of Lenkurt Electric Co.

Born and educated in Europe, they held top industrial and government posts in Australia before coming to the San Carlos, Cal. electronics firm.

Dr. Muller is known as a "pioneer of the atomic age" in Germany where he studied under the late Professor Hans Geiger at the University of Kiel. Together they developed the famed Geiger-Muller tube for detecting cosmic rays and radio-active radiation.

In other areas of nuclear science, Dr. Muller researched radio-active isotopes for medical applications and helped develop betatrons, a device for speeding up electrons to several million volts.

During 10 years as a research physicist for the European firm of Siemens-Halske, he became the first to use the principle of multiple focusing for transmitting a fine beam of electrons over long distances. This principle, originally developed for X-ray tubes, now is widely used in microwave.

He also was the first to design rectifier tubes for voltages in excess of 400,000 and is responsible for refinements in the field of X-ray tubes, mercury discharge lamps and fluorescent screens.

Dr. Vodicka brings to the American electronics industry a background in transistor development and the miniaturization of communications equipment.

Among his research achievements are semi-conductor circuitry developments for telecommunications, telemetering and high-speed data transmission. These include lattice repeaters, limiter amplifiers and special dc-to-ac and dc convertor designs capable of being modulated.

In Australia, Dr. Vodicka and Dr. Muller formed an electronics-physics research team that made significant advances in semi-conductor development. They developed a 1,000-watt switching transistor in 1956—two years ahead of its commercial availability.

Other key contributions of the Vodicka-Muller team include special power

YOU NEED ALL THREE of these easy-to-read

TRAINING BOOKS

THE ABC OF THE TELEPHONE books are reprinted from the popular series of articles by Frank E. Lee, currently appearing in TELEPHONY. The books give on-the-job application of technical know-how to thoroughly understand the telephone job.

These are the books telephone companies are using . . . over 30,000 ABC books have been shipped to large and small telephone companies all over the world.

VOLUME I COVERS:
Basic Circuits, Transmitters, Receivers, Induction Coils, Generators, Ringers, Relays, Line Protection, Dials, Automatic Switching, Principles of Protection, Drop Wire Installation.
21 CHAPTERS.

VOLUME II INCLUDES:
Installation and Maintenance of Sub-Station Protection, Station Wire Installation, Subscriber Station Installation, Fault Locating, Relay Circuit Analysis, Loading Coil Theory.
20 CHAPTERS.

VOLUME III COVERS:
Storage Batteries, Metallic Rectifiers, Electronic Tubes, Key Equipment, Carrier Circuits, Community Dial Offices, Central Office Service Objectives, Exchange Plant Trouble Reports and Analysis, Central Office Cross-connections, Routine Maintenance Schedules, Circuit Drawings, Wiring Diagrams.
31 CHAPTERS

Order a set of the three ABC books for each of your men. 72 chapters—284 pages (8½x 11) in the three volumes. Hundreds of illustrations. This is the BIG telephone training value.

Order any volume separately or combine your requirements to take advantage of the lower quantity prices shown on this schedule.

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51— 500 copies	1.05 ea.	1.05 ea.	1.75 ea.
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SPLICING?

SWITCHBOARD INSTALLATION?

Highly skilled personnel

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Fast Moving Equipment

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At Your Service.

GUSTAV HIRSCH ORGANIZATION, INC.

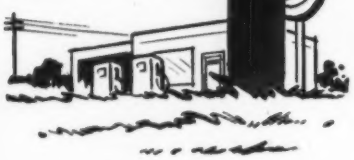
1347 WEST FIFTH AVENUE

COLUMBUS 12, OHIO

Telephone: HUdson 8-0611

PENTA POLES

PENTA treated top-to-butt for years of added pole-line service resulting in far less per annum costs. Dependable service by a company who has been serving telephone companies for more than 50 years.



PAGE & HILL, inc.

MINNEAPOLIS 3, MINNESOTA

convertors, magnetic amplifier controls and a control system for Peltier refrigeration.

Dr. Vodicka also has developed high-speed tape recorders, high precision electronic test equipment, and was a leader in the development of subminiature receivers and transmitters for military use.

At Lenkurt the two European scientists will be senior members of the research staff headed by George Lebedeff, vice president.

AE Sales Corp. Appoints Three District Managers

Robert B. Liepold, vice president, industrial products division, Automatic Electric Sales Corp., has announced the appointment of three new district managers. Automatic Electric Sales Corp. is the sales and distribution affiliate of Automatic Electric Co.

T. E. SMITH

D. W. BUEHRER

T. E. Smith has been named manager for the eastern district of the industrial products division, with headquarters in New York City. Mr. Smith formerly served as the sales corporation's east central district manager.

L. M. MARKEY

D. W. Buehrer, who was a sales representative in the Chillicothe, O. territory, will be manager of the central district, with headquarters in the main offices at Northlake, Ill.

L. M. Markey, formerly Los Angeles, Cal. sales representative, is the new western district manager, with headquarters in Los Angeles.

Benninghoven Is Manager For Kellogg in Southwest

K. H. Benninghoven has been named manager of the newly formed southwestern region of Kellogg Switchboard & Supply Co., with offices and warehouse at 1515 Turtle Creek Blvd., Dallas, Tex.

The announcement was made by O. C. Bailey, vice president and director of sales of Kellogg, communications division of the International Telephone & Telegraph Corp.

Mr. Benninghoven, a division manager when elevated to his present position, will direct Kellogg sales activities in the five-state area which includes Texas, Oklahoma, New Mexico, Louisiana and Arkansas.

He was employed by Kellogg as a field representative in February, 1952. Before his affiliation with Kellogg, he was employed by General Tire & Rubber Co. from 1945-1949, and by Goodyear Tire & Rubber Co. from 1949-1952.

Mr. Benninghoven attended Kansas State College. He served as a first lieutenant with the U. S. Army in World War II.

Kellogg now has seven regional offices in the United States, in addition to an export region.

LOOK TO THE LEADER...

for
- RELIABILITY
- SERVICE
- NATIONALLY KNOWN TELEPHONE SUPPLIES

Prompt delivery of your order as specified is assured by Lindsay's fast, efficient, personalized service. Lindsay specializes in telephone supplies *only* . . . warehousing a complete line of the finest nationally known brands . . . your guarantee of the best as you want it . . . when you want it.

LOOK TO LINDSAY

THE LINDSAY TELEPHONE SUPPLY CO., *Est.* 1939
360 East Highland Road, Northfield, Ohio • Telephone: IMperial 7-7181

NOW you can test working cable pairs without causing subscriber reports with the MURPHY Silent Buzzer!

You needed it!
Murphy made it . . .
the
Murphy Silent Buzzer

for testing cable pairs without causing subscriber reports. It's ready now at a low cost that will amaze you . . . especially when you check these advantages:

- Eliminates monitoring for busy lines
- Never disturbs any line
- Faster testing to identify pairs
- Super-heterodyne circuit, battery powered
- Loud clear two-tone signal to splicer and helper
- Compact and light, 3x4x5 inches

Shipping schedule—90 days, for additional information write

ELECTRONIC RESEARCH DEVELOPMENT MANUFACTURE
MURPHY ENGINEERING LABORATORIES, Inc.
4419 Tulsa Houston 24, Texas

A complete telephone directory publishing service

300 MONTGOMERY ST., SAN FRANCISCO, CALIF.
OFFICES: EVERETT, WASHINGTON - KILGORE, TEXAS
COOS BAY, OREGON - BEAVERTON, OREGON

JACK UP line crews' EFFICIENCY with the NEW LIGHTWEIGHT Aluminum SIMPLEX REEL JACK

Aluminum alloy housing reduces weight 21 pounds . . . full 10 ton lifting capacity maintained!

The new Simplex A1029 Reel Jack increases your men's efficiency by minimizing fatigue. Its lighter weight is a distinct advantage in loading, unloading and carrying to location, and its single-acting mechanism provides much easier lifting. Capacity 10 tons; weight 83 lbs. For reels up to 84" dia. Supplied with sturdy, laminated oak "T" base and 5' lever bar. Write today for full information.

Other SIMPLEX lightweight Leaders
A1538—Aluminum Pole Pulling & Straightening Jack; 15 tons cap., weight 63 lbs.
A1922—Aluminum Ratchet Lowering Jack for general lifting and lowering. Capacity 10 tons, weight 42 lbs.

Simplex Jacks

TEMPLETON, KENLY & CO.
2557 GARDNER RD.
BROADVIEW, ILL.

U. S. I. Chemicals Names Knight New Polymer Manager

Ralph M. Knight has been named manager of polyolefin planning and applications for U. S. Industrial Chemicals Co., division of National Distillers & Chemical Corp.

Mr. Knight will be responsible for long-range planning and coordination of U. S. I's polymer development program. He will also direct the company's polymer service laboratories located at Tuscola, Ill.

R. M. KNIGHT

The appointment was announced by Dr. Robert E. Hulse, executive vice president of National Distillers, and general manager of the U. S. I. division.

Mr. Knight will report directly to Dr. Hulse and to W. P. Marsh Jr., vice president of National Distillers and assistant general manager of U. S. I.

Since joining National Distillers in 1953, Mr. Knight has served as polyethylene manager, polyethylene production manager, and assistant to the vice president for production. He holds a bachelor of science degree in chemical engineering from Newark College of Engineering, class of 1939. From 1939 to 1952 he was associated with the ammonia and polychemicals department of E. I. du Pont de Nemours & Co., Inc., and between 1952 and 1953 he was in the research department of Standard Oil Co. at Whiting, Ind.

Mr. Knight is a member of the American Institute of Chemical Engineers, the Society of Plastics Engineers, the Society of the Plastics Industry, and Tau Beta Pi.

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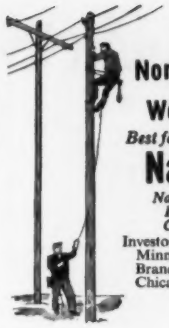

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Index to ADVERTISERS

	Page
Acme Visible Records, Inc.	—
Airtronics International Corp.	—
Ajax Business Machines, Inc.	—
Allied Radio Corporation	—
Alphaduct Wire & Cable Co., The	—
Altec Lansing Corp.	—
Aluminum Company of America	—
American Chain & Cable Co., Inc.	
Page Steel & Wire Div.	—
Wright Hoist Div.	—
American Creosoting Corporation	—
American Electrical Heater Co.	—
American Steel & Wire Co.	—
American Telephone & Telegraph Co.	48-49
Anaconda Wire & Cable Co.	—
Ansonia Wire & Cable Co., The	—
Arps Corporation	—
Atlantic Creosoting Co., The	69
Automatic Electric Sales Corp.	14-15, 36-37
Baker Wood Division	69
Barber Advertising Specialties, Walt	—
Bell Telephone Laboratories, Inc.	—
Benner-Nawman, Inc.	—
Berry & Co., L. M.	—
Biddle Co., James G.	—
Bishop Manufacturing Corp.	—
Blaw-Knox Company	—
British Insulated Callenders' Cables, Ltd.	43
Buchart Associates	—
Buckeye Telephone & Supply Co.	57, 70
Burgess-Manning Company	—
Burroughs Corp.	31
C&D Batteries, Inc.	—
Cabaniss-Pogue Co.	68
Cable Construction Co.	68
Cable Spinning Equipment Co.	—
Calculagraph Company	—
Chance Co., A. B.	—
Chase Brass & Copper Co.	—
Cleveland Inst. of Radio Electronics	—
Clifton Appraisal Company	—
Collins Radio Co.	7
Colorado Fuel & Iron Co., The	—
Commercial Cord Company, Inc.	—
Communication Equipment & Engineering Co.	—
Cook Electric Company	8-9
Copperweld Steel Co.	—
Crane, Inc., Carl C.	68
Cushman Motor Works, Inc.	—
Davis Construction Co.	68
Davis Inc., Archie	69
Donnelley & Sons, R. R.	—
Duo-Safety Ladder Corp.	—
Electric Specialty Co.	47
Everstick Anchor Co.	—
Exide Industrial Division, The Electric Storage Battery Co.	—
Fitchburg Engineering Corporation	—
Foley Construction Co., Robert E.	68
General Cable Corporation	—
General Insulated Wire Works	—
General Machine Products Co., Inc.	—
General Telephone Directory Co.	—
Goodrich Chemical Co., B. F., The	33
Gould-National Batteries, Inc.	—
Graybar Electric Co.	—
Haley & Co., R. G.	—
Harris McBurney Company	—
Henkels & McCoy	69
Highway Trailer Company	—
Hirsch Organization Inc., Gustav	65
Holan Corp.	27
Indiana Steel & Wire Co.	62
Irwin Auger Bit Co.	—
Johns-Manville	—
Kander & Company, Allen	—
Kearney Co., Jas. J.	54
Kellogg Switchboard & Supply Co.	4-5, 53, 63
Kennecott Wire & Cable Co.	—
Keystone Steel & Wire Co.	16
Killoren Company	—
Klein & Sons, Mathias	50
Kleinschmidt	35
Koiled Kords, Inc.	—
Koppers Co., Inc. Wood Preserving Div.	69
Lake Shore Electric Corp.	—
Leich Sales Corporation	10-11
Lindsay Telephone Supply Co.	67
Line Equipment Sales	69
Lorain Products Corp., The	—
Lynch Carrier Systems, The	—
Magnolia Chemical Company, Inc.	—
Malleable Iron Fittings Co.	—
McCabe Powers Auto Body Co.	—
McGrath Engineering, Inc.	68
Midwest Communications Service Co.	69
Mini-Fone	—
Monsanto Chemical Co.— Plastics Div.	—
Moore Associates	60
Mullen Construction Co.	—
Murphy Engineering Laboratories	67
Natco Corporation	—
National Pole & Treating Div.	69
National Standard Co.	—
National Telephone Supply Co.	Back Cover
Neubauer Manufacturing Co.	—
Neuses, Inc., K. P.	69
North Electric Company	28-29
Onan & Sons, D. W.	61
Orangeburg Manufacturing Co., Inc.	45
Owens-Illinois	—
Page & Hill, Inc.	66
Phelps Dodge Copper Products Corp.	—
Philco Corporation, Gov't. & Industrial Div.	—
Porcelain Products, Inc.	—
Porter, Inc., H. K.	—
Preformed Line Products Co.	41-42
Radio Frequency Laboratories, Inc.	56
Ramset Fastening System	—
Rawlplug Company, The	55
Raytheon Mfg. Company	—
Recordak Corp.	—
Reichhold Chemicals, Inc.	13
Reliable Electric Company	12
Remington Rand Div.	—
Republic Creosoting Co.	—
Rex Corporation, The	59
Rolatape, Inc.	—
Runzel Cord & Wire Co.	—
S & G Manufacturing Corp.	64
Schauer Mfg. Co.	—
Secode Corporation	—
Seymour Smith & Son	52
Sierra Electronics Corp.	—
Sloan, Cook & Lowe Co.	68
Stainless, Inc.	58
Stampings, Inc.	—
Stewart Bros.	56
Stromberg-Carlson Co.	2-3
Superior Cable Corporation	—
Suttle Equipment Corporation	69
Taylor-Colquitt Co., The	—
Telectric Co.	71
T.E.I. Corp.	69
Tele-Muff Co.	—
Telephone Construction, Inc.	—
Telephone Training Institute	56
Tele-Wire Supply Co., Inc.	—
Telkor, Inc.	69
Templeton, Kenly & Co.	68
Thornhill Publishing Co.	68
Transandean Associates, Inc.	51
Tudor & Yager, Inc.	69
Tung-Sol Electric, Inc.	—
United Electric Controls Co.	—
U. S. Cable Constructors, Inc.	68
United States Independent Telephone Association	—
U. S. Industrial Chemicals Co.	—
United States Instrument Corp.	73
United States Motors Corp.	—
United States Steel Corp.	
American Steel & Wire Co.	—
Creosote Division	—
Universal Controls Corp.	39
Utica Drop Forge & Steel Div.	—
Utility Body Co.	—
Utility Service Co., Inc.	—
Utility Tool & Body Co.	69
Vermeer Mfg. Co.	64
Volkswagen	—
Warren Mfg. Co., Inc., The	—
Weikel Line Company	69
Western Electric Co.	—
Whitney-Blake Co.	—
Williams Inspection Co., Inc., A. W.	69
Wiremold Co., The	—
Woodings-Verona Tool Works	—
Wyoming Valley Equipment Div.	—
York-Hoover Corporation	—

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